**General Bid Bulletin No. 32**
01 October 2021

**THE MALOLOS-CLARK RAILWAY PROJECT AND THE NORTH-SOUTH RAILWAY PROJECT SOUTH LINE COMMUTER PACKAGE CP NS-01: PROCUREMENT OF ELECTRICAL AND MECHANICAL SYSTEMS AND TRACK WORKS (IFB No: 21-040-3)**

**TO ALL PROSPECTIVE BIDDERS:**

This General Bid Bulletin is issued to amend/clarify certain provisions in the Bidding Documents for the above-mentioned Project. Please refer to the attached Annexes of this General Bid Bulletin for details:

1. **Annex "A"** — Clarification to the Bidding Documents
2. **Annex "B"** —Addendum to the Bidding Documents with "**Attachment 1**"
3. **Annex "C"** — Not Applicable

All other portions of the Bidding Documents not affected by these revisions, amendments and/or clarifications shall remain unchanged.

Revisions/amendments/clarifications made herein shall be conserved as an integral part of the Bidding Documents of this Project.

For your guidance and information.

For the Bids and Awards Committee

SIGNATURE REDACTED

**ENGR. JAIME M. NAVARRETE, JR**
Chairperson

# Annex A

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| 1 | Volume I.<br>Section. II., BDS-10, ITB 24.1, The deadline for Bid submission is:<br>Date: 17 September 2021<br>Time: 10:00 AM" | With consideration of the guidelines of the Inter-Agency Task Force on Emerging Infectious Disease and the Department of Health, uncertainties are posed by the issuance of the Community Quarantine.<br><br>In addition to this, we still have clarifications for your tender conditions and have not yet got all proper replies against clarifications which we already submitted.<br><br>In this light, we humbly request for an extension of the deadline for Bid submission be moved to 17 November 2021 | "XXXX<br><br>The deadline for Bid submission is:<br>Date: 17 November 2021<br>Time: 10:00 AM" | Please refer to GBB31 for information on bid submission extension. |
| 2 | Volume I, Part 1 – EVALUATION AND QUALIFICATION CRITERIA, EQC - 11, , 4.2 (b)<br>10) Minimum of two (2) contracts for Computerized Maintenance Management Systems for railway system maintenance. | The value for Computerized Maintenance Management Systems (CMMS) is a very insignificant compared to overall Bid.<br>Therefore, we request you to delete the specific experience criteria 4.2 (b) 10) for the CMMS. | | The Bid condition shall prevail. |

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| 3 | (a) Volume I, Part 1 – Bidding Procedures<br>Section IV. Bidding Forms,.<br><br>(b) ITB 18.7(3)(iv), Volume 1, Part 1, Section II. , BF – 249 to 250<br><br>Bid Data Sheets, BDS - 5, Bid Data Sheets, BDS - 5, Grand Summary Note (2) provides:<br><br>"(2) The Value Added Tax (VAT) for the Foreign Currency portion shall be converted to the Local Currency according to ITB 37.1 and added to the VAT for the Local Currency portion."<br><br>However, ITB 18.7 of the Bid Data Sheet provides that VAT, except VAT on imports, shall be incorporated | Significant part of the work that would be billed in foreign currency relate to importations as well as offshore works. Since the import VAT will already be assumed by DOTr, which, as instructed, should not be incorporated in the Local Unit Prices (PhP) and Local Amounts (PhP) of the Bid Price, may we get confirmation that the conversion mentioned in Grand Summary note (2) of Volume I, Part 1 – Bidding Procedures Section IV. Bidding Forms, BF – 250 will apply only to onshore works that will be paid through foreign currency (if any)?<br><br>Further, we understand that the entire import VAT and Customs duty on offshore supply of good and services shall be assumed by DOTR and accordingly, no duties or import VAT need not be factored in the Bid prices to be quoted by the Bidder. Kindly confirm | | Bidding form Grand Summary was amended. Please refer to the Annex B for the detail of the amendment.<br><br>Reference to the General Bid Bulletin No. 30 Annex A, VAT is imposed on the importation or on services rendered in the Philippines. If Foreign Currency amount is for work done outside the Philippines, this is not subject to VAT. Consequently, this should not be included in computing the 12% VAT.<br><br>If it pertains to work done in the Philippines or for importation, the same is subject to VAT and the computation should be for both the local and foreign portion but subject to the tax assumption according to RMC No.42-99 and RMC No. 8-2017.<br><br>Please also refer to the Part 1 - Bidding Procedures Section I and Section II, Bid Data Sheet (BDS) ITB 19.1, ITB 18.7, subitem 3 (iv) and (v) for detail description on the tax |

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| Summary of Bid Amount excluding Value Added Tax (C)=(A)+(B) | (C) | (CL) | (CF) |
| Value Added Tax (12%)<br>DL=(CL+CF x Exchange rate) x 12% | (D) | (DL) | |
| Summary of Total Bid Amount including Value Added Tax [(E)=(C)+(D)] | (E) | (EL) | (EF=CF) |

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| | into the Local Unit Prices and Local Amounts of the Bid Price:<br><br>"(3) Description below made available to Bidders for their reference, but not limited to:<br><br>(iv) VAT:<br>VAT registered suppliers and subcontractors of the Japanese companies, shall bill and pass on the twelve percent (12%) to the Japanese companies/contractors. In turn, the Japanese contractors shall include in their billing and pass on the 12% VAT to the Employer. Therefore, VAT, except VAT on imports, shall be incorporated into the Local Unit Prices (PhP) and Local Amounts (PhP) of the Bid Price. It will be the responsibility of the Japanese Contractor to file the prescribed VAT returns on gross receipts derived from the Project, | | | treatment for VAT, Import VAT & Import Duties, and Currencies of Bid and Payment. |

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| | claim their input taxes from their purchase of goods, properties and services from their suppliers or subcontractors and shall pay the output tax or VAT thereon, after offsetting the creditable or allowable input taxes, considering that the amount intended for payment of the VAT has already been collected and received by the Japanese contractors or nationals from the Employer as part of the total billing/invoice price. (RMC No. 8-2017)." | | | |
| 4 | (a) ITB 18.7(1)(i), Volume 1, Part 1, Section II. Bid Data Sheets, BDS – 5; (b) PACKAGE CP NS-01: E&M SYSTEMS AND TRACK WORKS, General Bid Bulletin No. 8, Annex A, pg. 18 of 28., , , Under ITB 18.7, the Government of the Republic of the Philippines shall assume responsibility for all duties and related fiscal charges imposed on the Japanese Companies operating | Kindly clarify whether the shipment needs to identify the Japanese Contractor as consignor/shipper for the tax assumption on importation to apply. | | The consignee shall be Department of Transportation (DOTr). |

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| | as Suppliers and contractors, to quote:<br><br>"1. The Government of the Republic of the Philippines shall, by itself or through its executing agency, assume responsibility for: (i) all duties and related fiscal charges imposed in the Republic of the Philippines on the Japanese companies operating as suppliers and contractors with respect to the import and re-export of their own materials and equipment needed for the implementation of the Project"<br><br>Further, under General Bid Bulletin No. 8, it is required that the named consignee is DOTr, to wit:<br><br>"a) Yes, the Consignee would be the Employer i.e. Department of Transportation (DOTr). Such matters as a Master List may be discussed at | | | |

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| | the time of contract negotiation to finalize any outstanding issues." | | | |
| 5 | (a) ITB 18.7(1)(i), Volume 1, Part 1, Section II. Bid Data Sheets, BDS – 5;, , , Under ITB 18.7, the Government of the Republic of the Philippines shall assume responsibility for all duties and related fiscal charges imposed on the Japanese Companies operating as Suppliers and contractors, to quote:<br><br>"1. The Government of the Republic of the Philippines shall, by itself or through its executing agency, assume responsibility for: (i) all duties and related fiscal charges imposed in the Republic of the Philippines on the Japanese companies operating as suppliers and contractors with respect to the import and re-export of their own materials and equipment needed for the implementation of the Project" | a. Please clarify whether the tax assumption benefit also extends to Japanese subcontractors.<br>b. Please clarify whether the Japanese Supplier of a subcontractor may also avail of the tax assumption benefits. | | a. No. The tax assumption is applicable to Japanese contractors, suppliers, and nationals. Please refer to the RMC 8-2017.<br><br>b. Please refer to item a shown above. |

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| 6 | Volume I / Part I / Section IV, , , General | Can the Bidder transfer the tile in goods of the offshore supplies to DOTr before the goods cross the Customs frontiers of Philippines | | The title shall remain with the shipper. |
| 7 | Volume I / Part I / Section IV Bidding Forms, BF-133, Schedule 1.3: Price Schedule for Section 3<br>Schedule 1.3-3: Signalling System<br>Milestone No. 303.1, Milestone No. 303.1 : Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made on completion of the above work for each station at the rate of one sixth (1/6) of the amount of Milestone No. 303.1 per station.) | Section 3 scope includes 2 Stations.<br>In this regard, the payment has to be made at the rate of one-second (1/2) of the amount of Milestone No. 303.1 per station.<br>Kindly check and amend. | Milestone No. 303.1 :<br>……..<br>(Payment will be made based on completion of the above work for each station at the rate of one second (1/2) of the amount of Milestone No. 303.1 per station.) | Please refer to the Annex B for the amendment. |
| 8 | Volume I / Part I / Section IV Bidding Forms, BF-187, Schedule 1.4: Price Schedule for Section 4 | Section 4 scope includes 18 Stations.<br>In this regard, the payment has to be made at the rate of one-eighteenth (1/18) of the amount | Milestone No. 303.1 :<br>…….. | Please refer to the Annex B for the amendment. |

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| | Schedule 1.4-3: Signalling System<br>Milestone No. 303.1, Milestone No. 303.1 : Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer.<br><br>(Payment will be made on completion of the above work for each station at the rate of one ninth (1/9) of the amount of Milestone No. 303.1 per station.) | of Milestone No. 303.1 per station.<br>Kindly check and amend. | (Payment will be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 303.1 per station.) | |
| 9 | Volume I / Part I / Section IV Bidding Forms, BF-139 & BF-140, Schedule 1.3: Price Schedule for Section 3<br>Schedule 1.3-4: Telecommunication<br>Milestone No. 403.1, Milestone No. 403.1 : Delivery to the Site, installation and testing (including pre-installation tests, site | Section 3 scope includes 2 Stations.<br>In this regard, the payment has to be made at the rate of one-second (1/2) of the amount of Milestone No. 403.1 per station.<br>Kindly check and amend. | Milestone No. 403.1 :<br>……..<br>(Payment will be made based on completion of the above | Please refer to the Annex B for the amendment. |

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| | acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer.<br><br>(Payment will be made based on completion of the above work.) | | work for each station at the rate of one second (1/2) of the amount of Milestone No. 403.1 per station.) | |
| 10 | Volume I / Part I / Section IV Bidding Forms, BF-193 & BF-194, Schedule 1.4: Price Schedule for Section 4 Schedule 1.4-4: Telecommunication Milestone No. 403.1, Milestone No. 403.1 : Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer.<br><br>(Payment will be made based on completion of the above work for | Section 4 scope includes 18 Stations.<br>In this regard, the payment has to be made at the rate of one-eighteenth (1/18) of the amount of Milestone No. 403.1 per station.<br>Kindly check and amend. | Milestone No. 403.1 :<br>……..<br>(Payment will be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. | Please refer to the Annex B for the amendment. |

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| | each station at the rate of one ninth (1/9) of the amount of Milestone No. 403.1 per station.) | | 403.1 per station.) | |
| 11 | Volume I / Part I / Section IV Bidding Forms, BF-73, BF-74, BF-134, BF-135, BF-188 & BF-189 , Schedules 1.2-3, 1.3-3 & 1.4-2: Signalling System Milestone No. 303.4, Schedules 1.2-3 / Milestone No. 303.4 : ……. (Payment will be made per train on completion of the integrated tests for each train at the rate of one twenty-sixth (1/26) of the amount of Milestone No. 303.4 per train.)<br><br>Schedules 1.3-3 / Milestone No. 303.4 : ……. (Payment will be made per train on completion of the integrated tests for each train at the rate of one twenty-sixth (1/26) of the amount of Milestone No. 303.4 per train.)<br><br>Schedules 1.4-3 / Milestone No. | On-board equipment has to be executed for 75 Nos. of Trainsets as per details given below:<br>• 7 Nos. of Limited Express Trainsets<br>• 38 Nos. of Commuter Trainsets<br>• 30 Nos. of MMSP Line Trainsets<br><br>However, in payment terms against milestone 303.4 for installation of On-board equipment provided in Sections 2, 3 & 4, the total no. of trainsets is only 71 Nos. (i.e. 26 sets in Section 2 + 26 sets in Section 3 + 19 sets in Section 4). Kindly check and amend. | | Please refer to the Annex B for the amendment. |

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| | 303.4 : ……. (Payment will be made per train on completion of the integrated tests for each train at the rate of one nineteenth (1/19) of the amount of Milestone No. 303.4 per train.) | | | |
| 12 | Volume I / Part I / Section IV Bidding Forms, BF-79, BF-80 & BF-195 , Schedules 1.2-4 & 1.4-4: Telecommunication<br>Milestone No. 403.4, Schedules 1.2-4 / Milestone No. 403.4 : …….<br>(Payment will be made per train on completion of the integrated tests for each train at the rate of one twenty-sixth (1/26) of the amount of Milestone No. 403.4 per train.)<br><br>Schedules 1.4-4 / Milestone No. 403.4 : ……. (Payment will be made per train on completion of the integrated tests for each train at the rate of one nineteenth (1/19) of the | On-board equipment has to be executed for 75 Nos. of Trainsets as per details given below:<br>• 7 Nos. of Limited Express Trainsets<br>• 38 Nos. of Commuter Trainsets<br>• 30 Nos. of MMSP Line Trainsets<br><br>However, in payment terms against milestone 403.4 for installation of On-board equipment provided in Sections 2 & 4, the total no. of trainsets is only 45 Nos. (i.e. 26 sets in Section 2 + 19 sets in Section 4).<br>Kindly check and amend. | | Please refer to the Annex B for the amendment. |

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| | amount of Milestone No. 403.4 per train.) | | | |
| 13 | Volume I / Part I / Section IV Bidding Forms, BF-159 & BF-160, Schedule 1.3: Price Schedule for Section 3<br>Schedule 1.3-8: Automatic Fare Collection System<br>Milestone No. 803, Milestone No. 803: Construction, Installation and Testing<br>Delivery to the Site, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all automatic fare collection system equipment and accessories at the stations, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made based on completion of the above work.) | Section 3 scope includes 2 Stations.<br>In this regard, the payment has to be made at the rate of one-second (1/2) of the amount of Milestone No. 803 per station.<br>Kindly check and amend. | Milestone No. 803 : ……..<br>(Payment will be made based on completion of the above work for each station at the rate of one second (1/2) of the amount of Milestone No. 803 per station.) | Please refer to the Annex B for the amendment. |
| 14 | Volume I / Part I / Section IV Bidding Forms, BF-214 & BF-215, Schedule 1.4: Price Schedule for Section 4 | Section 4 scope includes 18 Stations.<br>In this regard, the payment has to be made at the rate of one-eighteenth (1/18) of the amount | Milestone No. 803 : ……..<br>(Payment will | Please refer to the Annex B for the amendment. |

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| | Schedule 1.4-8: Automatic Fare Collection System<br>Milestone No. 803, Milestone No. 803: Construction, Installation and Testing<br>Delivery to the Site, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all automatic fare collection system equipment and accessories at the stations, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made based on completion of the above work for each station at the rate of one ninth (1/9) of the amount of Milestone No. 803 per station.) | of Milestone No. 803 per station.<br>Kindly check and amend. | be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 803 per station.) | |
| 15 | Volume I / Part I / Section IV Bidding Forms, BF-113, Schedule 1.2: Price Schedule for Section 2<br>Schedule 1.2-11: Platform Screen Doors | Section 2 scope includes 6 Stations.<br>In this regard, the payment has to be made at the rate of one-sixth (1/6) of the amount of Milestone No. 1103 per station.<br>Kindly check and amend. | Milestone No. 1103 : ……..<br>(Payment will be made based on | Please refer to the Annex B for the amendment. |

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| | Milestone No. 1103, Milestone No. 1103: Installation and Testing<br>Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made based on completion of the above work for each station at the rate of one seventh (1/7) of the amount of Milestone No. 1103 per station.) | | completion of the above work for each station at the rate of one sixth (1/6) of the amount of Milestone No. 1103 per station.) | |
| 16 | Volume I / Part I / Section IV Bidding Forms, BF-167, Schedule 1.3: Price Schedule for Section 3<br>Schedule 1.3-11: Platform Screen Doors<br>Milestone No. 1103, Milestone No. 1103: Installation and Testing<br>Delivery to the stations, installation, and testing (including pre- | Section 3 scope includes 2 Stations.<br>In this regard, the payment has to be made at the rate of one-second (1/2) of the amount of Milestone No. 1103 per station.<br>Kindly check and amend. | Milestone No. 1103 : ……..<br>(Payment will be made based on completion of the above work for each station at the | Please refer to the Annex B for the amendment. |

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| | installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made based on completion of the above work.) | | rate of one second (1/2) of the amount of Milestone No. 1103 per station.) | |
| 17 | Volume I / Part I / Section IV Bidding Forms, BF-225, Schedule 1.4: Price Schedule for Section 4<br>Schedule 1.4-11: Platform Screen Doors<br>Milestone No. 1103, Milestone No. 1103: Installation and Testing<br>Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made based on | Section 4 scope includes 18 Stations.<br>In this regard, the payment has to be made at the rate of one-eighteenth (1/18) of the amount of Milestone No. 1103 per station.<br>Kindly check and amend. | Milestone No. 1103 : ……..<br>(Payment will be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 1103 per station.) | Please refer to the Annex B for the amendment. |

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| | completion of the above work for each station at the rate of one ninth (1/9) of the amount of Milestone No. 1103 per station.) | | | |
| 18 | Volume I / Part I / Section IV Bidding Forms, BF-237, Schedule 1.7: Option for Automatic Train Operation Function<br>Milestone No. O-3.1, Milestone No. O-3.1 : Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made on completion of the above work for each station at the rate of one sixth (1/6) of the amount of Milestone No. O-3.1 per station.) | Project scope totally includes 26 Stations.<br>In this regard, the payment has to be made at the rate of one-twenty sixth (1/26) of the amount of Milestone No. O-3.1 per station.<br>Kindly check and amend. | Milestone No. O-3.1 :<br>…….<br>(Payment will be made based on completion of the above work for each station at the rate of one twenty sixth (1/26) of the amount of Milestone No. O-3.1 per station.) | Please refer to the Annex B for the amendment. |
| 19 | Volume I / Part I / Section IV Bidding Forms, BF-238, Schedule 1.7: Option | Project scope totally includes on-board equipment for 75 trainsets. | Milestone No. O-3.1 : | Please refer to the Annex B for the amendment. |

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| | for Automatic Train Operation Function<br>Milestone No. O-3.3, Milestone No. O-3.3 : Delivery, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of on-board equipment, and obtaining acceptance thereof from the Engineer.<br>(Payment will be made per train on completion of the integrated tests for each train at the rate of one twenty-sixth (1/26) of the amount of Milestone No. O-3.3 per train.) | In this regard, the payment has to be made at the rate of one-seventy fifth (1/75) of the amount of Milestone No. O-3.3 per train. Kindly check and amend. | ……..<br>(Payment will be made per train on completion of the integrated tests for each train at the rate of one seventy fith (1/75) of the amount of Milestone No. O-3.3 per train.) | |
| 20 | Volume I / Part I / Section IV Bidding Forms<br><br>GBB No. 6, BF-255<br><br>Page 10 of 37, Schedule 2: Table of Adjustment Data - Table A. Local Currency (LC) | Based on Item No. 20 / Annex A / GBB No. 6, we could find the index value for Labour Cost index as mentioned below:<br><br>Current Daily Minimum Wage Rates \| National Capital Region (NCR) \| Per Wage Order No. NCR-22 \| (Effective: 22 November 2018) \| New Minimum Wage Rates for Non-Agriculture Sector à PHP 537.00 | | The last update for the current nominal minimum wage rate was August 2021. Please refer to the statistics published by National Wages and Productivity Commission (NWPC) which is an attached agency of the Department of Labor and Employment (DOLE).<br>https://nwpc.dole.gov.ph/sort-statistics/?sort=wages&&cat=Wages |

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| | Annex A / Item No. 20, Source of Index – DOLE*1<br>*1: The Department of Labour and Employment (DOLE)<br><br>The Bidder may refer to the National Wages and Productivity Commission (NWPC) which is an attached agency of the Department of Labor and Employment (DOLE).<br>https://nwpc.dole.gov.ph | We would like to highlight that this wage order/index was last published in November 2018. There has not been any revision since then.<br>If we are to consider this as Labour Cost Index, there will not be any compensation.<br><br>Therefore, we would request you to suggest an alternate reference for Labour cost Index, which reflects the actual cost movement and is publisher on a monthly basis, | | |
| 21 | Volume I / Part I / Section IV Bidding Forms<br><br>GBB No. 2, BF-255 & BF-256 | Kindly appreciate the Bidder's argument that the systems which are to be considered for Price Variation under "For E&M Systems Works other than Track Works" are totally different and variable based on different base commodities.<br>For example,<br>• OCS price is variable based on Steel and Copper market prices<br>• Signalling and Telecom system price is variable based on Electronic / Communication | | The Bidder's request is rejected. Please refer to the Section VII General Conditions GC 13.8 for the detail description on the Adjustment for Changes in Cost. Schedule of Adjustment shall be submitted with the Letter of Price Bid and finalized at signing of the Contract. |

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| | Page 6 of 86, Schedule 2: Table of Adjustment Data - Table A. Local Currency (LC) & Table B. Foreign Currency (FC)<br><br>Annex A / Item No. 10, "For Track Works" and "For E&M Systems Works other than Track Works"<br><br>The bidder's request is rejected. The Schedule 2 has shown the data for "Track Works" and "E&M Systems Works other than Track Works". | market prices<br>In this regard, the Bidder is requesting again to consider separate tables for different systems under same currencies for price variation calculation.<br>Kindly consider the same. | | |
| 22 | Volume I / Part I / Section IV Bidding Forms<br><br>GBB No. 2, BF-255 & BF-256 | Kindly appreciate the Bidder's argument that the "Range of Weightage" given is not reflecting the actual weightage of the particular cost index.<br>For example, in Table B. Foreign Currency (FC),<br>• The range of weightage given for "Equipment" cost index is 0.55 – 0.65 for Track Works and | | The Bidder's request is rejected. Please refer to the Section VII General Conditions GC 13.8 for the detail description on the Adjustment for Changes in Cost. Schedule of Adjustment shall be submitted with the Letter of Price Bid and finalized at signing of the Contract. |

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| | Page 5 of 86<br>, Schedule<br>2: Table of Adjustment Data - Table A. Local Currency (LC) & Table B. Foreign Currency (FC)<br><br>Annex A / Item No. 9, (f) Range of Weightage (acceptable to the Employer)<br><br>The bidder's request is rejected. The non-adjustable item are having the fixed weighting of 0.15 as shown in the Schedule 2. The bidder may propose the weighting for Labor, Equipment and Materials as long as the value are fall within the range of | 0.40 – 0.55 for E&M Systems Works.<br>• Whereas, the range of weightage given for "Materials" cost index is 0.15 – 0.20 for Track Works and 0.25 – 0.35 for E&M Systems Works.<br>• In actual scenario, the weightage for Materials cost index will be higher than Equipment cost index.<br>• However, the Bidder cannot put the same in Schedule-2 as per actual, due to the "Range of Weightage" defined.<br>In this regard, the Bidder is requesting to remove the range of Weightage defined.<br><br>Also, the Employer is requested to specify only the minimum weightage of 15% to Fixed component and allow the<br>Bidder to increase the same if required against the Systems for which the Bidder has FIRM prices.<br><br>The above changes will allow the Bidders to prepare and submit their most competitive Price Bid. Hence, kindly consider the same. | | |

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| | weighting acceptable to the Employer (column (f)). | | | |
| 23 | Part -2<br>Section VI<br>&<br>GBB-19, ERT-32<br>5 of 84, 1.14.1,<br><br>MCRP-DWG GEN-TK-0200,<br>&<br>S. No. 5, 4) The elastic material shall be adhered on the bottom surface of the sleeper beneath the rail position. The coefficient of elasticity shall be 25-30MN/m.<br>5) Deformable clearance material shall be attached to the bottom surface of the sleeper to avoid adhesion between the sleeper and track bed around the elastic material.<br>6) Elastic material is attached to avoid adhesion between sleeper and the track bed on the end surface and | From the referred Clauses and Drawings, we understand that the Elastic Material shall be attached to the Sleeper bottom, end surface and side surfaced at the factory itself and the bidder need not to provide separate Boot or Anti Vibration Sleeper Box.<br>Whereas the response from the employer in GBB-19 in this regard (Ref S.No. 5) is not clear whether the contractor shall supply Separate Boot / Anti vibration Sleeper Box or not.<br>Kindly understand that in case a separate boot / anti vibration sleeper box is to be provided, then the elastic material need not to be attached to the sleeper and can be placed within the boot / Anti Vibration Sleeper box.<br>Whereas as per the current tender conditions, the elastic material and Deformable material shall be attached to the sleeper and the purpose of Deformable clearance material is to avoid adhesion between sleeper and track bed, i.e., the deformable clearance material is the only material in between Sleepers and in situ | | The Bidder shall propose a method on how to integrate the elastic material/deformable material and PSC sleeper before it is embedded to the in-situ concrete. The concrete should not penetrate in between those materials and the use of a separate boot/anti vibration sleeper box can be proposed by the contractor as a solution and subject to Engineers approval. |

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| | side surface of the sleeper. The coefficient of elasticity of the material shall be about 250-300MN/m.<br>The elastic materials at the sleeper bottom, end and side surface is one set and can be considered as Boot or Anti Vibration Sleeper box following the requirement stated in ERT 1.14.1. The contractor shall submit the detailed design subject to Engineers review and approval. | Concrete.<br>Hence, we understand that bidder need not to provide separate Boot or Anti Vibration Sleeper Box. Kindly clarify the same, as this may lead to significant cost impact. | | |
| 24 | Part -2<br>Section VI, ERT-32<br>5 of 84, 1.14.1, 4) The elastic material shall be adhered on the bottom surface of the sleeper beneath the rail position. The coefficient of elasticity shall be 25-30MN/m.<br>5) Deformable clearance material shall be attached to the bottom surface of the sleeper to avoid adhesion between the sleeper and | From the referred Clauses and Drawings, we understand that the Elastic Material shall be attached to the Sleeper bottom, end surface and side surfaced at the factory itself.<br>Some of our suppliers, who have experience of supplying elastic material in various projects with similar Track in Japan and outside Japan are expressing concerns that the chemical materials used in the Elastic mats and Deformable clearance material are prohibited in Philippines and refusing to supply the same material. | | It is the contractor's obligation to interface with outside authorities as stated in ERT 1.4.10. In case that the material proposed by the contractor are prohibited to enter the Philippines, the contractor shall propose equivalent material following the requirement of this contract and subject to Engineer's review and approval. |

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| | track bed around the elastic material.<br>6) Elastic material is attached to avoid adhesion between sleeper and the track bed on the end surface and side surface of the sleeper. The coefficient of elasticity of the material shall be about 250-300MN/m. | Hence, we request the employer to confirm whether the Elastic materials from Japan shall be allowed to use in Philippines or the bidder shall propose some alternative material which is different from the material which was used in similar projects in Japan.<br>In case the bidder shall propose an alternative material, kindly propose the material, or give references of such material. | | |
| 25 | Part -2<br>Section VI<br>Employer's Drawings, 60/321, MCRP-DWG-GEN-TK-0207, TYPICAL DETAILS OF FFU SLEEPER FOR TURNOUTS MCRP-DWG-GEN-TK-0207<br>(BALLASTLESS TRACK) | From the referred Drawing, we understand that the Epoxy Grout material shall be used to fill the gap between FFU sleepers and the Track Bed in Turnout Areas.<br>Some of our suppliers, who have experience of supplying Epoxy Grout material along with Long Tubes / Bags in various projects with similar Track in Japan and outside Japan are expressing concerns that the chemical materials used in the Epoxy Grout are prohibited in Philippines and refusing to supply the same material.<br>Hence, we request the employer to confirm whether the Epoxy Grout materials from Japan shall be allowed to use in Philippines or the bidder shall propose some alternative material | | It is the contractor's obligation to interface with outside authorities as stated in ERT 1.4.10. In case that the material proposed by the contractor are prohibited to enter the Philippines, the contractor shall propose equivalent material following the requirement of this contract and subject to Engineer's review and approval. |

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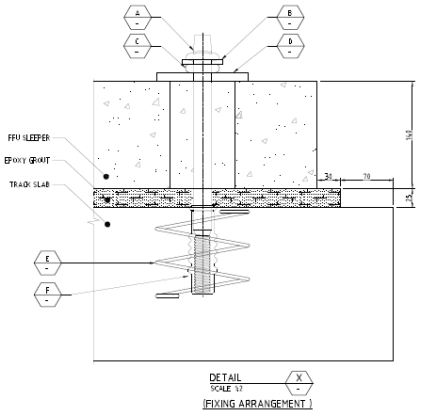
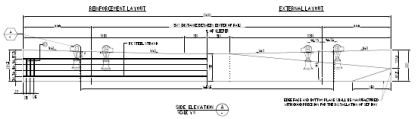
| |  | which is different from the material which was used in similar projects in Japan.<br>In case the bidder shall propose an alternative material, kindly propose the material, or give references of such material. | | |
| 26 | Part -2<br>Section VI<br>Employer's Drawings, 59/321, MCRP-DWG-GEN-TK-0206, TYPICAL DETAILS FOR MONO-BLOCK PSC CONCRETE SLEEPER FOR BALLASTED TRACK<br>  | In the referred drawing, the details of Reinforcement (PC Steel Strand) required is not mentioned.<br>We request the employer to provide the details of PC Steel Strands like the diameter and Grade of Steel etc. | | The drawing MCRP-DWG-GEN-TK-0206 is for reference only. The Bidder shall propose a sleeper detailed design subject to the Engineer's approval. |

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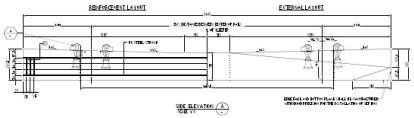
| 27 | Part -2<br>Section VI<br>Employer's Drawings, 59/321, MCRP-DWG-GEN-TK-0206, TYPICAL DETAILS FOR MONO-BLOCK PSC CONCRETE SLEEPER FOR BALLASTED TRACK<br>  | In the referred drawing, there is a note written as"Edge face and bottom plane shall be manufactured with good precision for the installation of SEF box".<br>We understand from the tender specifications that there is no requirement of any SEF box or Elastic mats for the PSC Sleepers for the Depot Ballasted Track. We also understand that the referred note from the drawing has no significance.<br>Kindly confirm our understanding. | | The Bidder's understanding is correct. Please refer to Annex B for the revised reference drawing. |
| 28 | Part -2<br>Section VI, ERT-47, 1.23 Walkway, | We understand from the referred clause that the bidder shall design the Walkway complying to the tender conditions.<br>We also understand that the Walkway can rest on the Viaduct Parapet wall, or the bidder can design Walkway in such a way that it will be supported on the Viaduct parapet wall.<br>Kindly confirm. | | The Bidder's understanding is incorrect. The walkway shall be separate from the parapet wall and not impose any load on the parapet. |
| 29 | Part -2 Section VI<br>&<br>GBB No.22, ERT-50<br>&<br>133/219, 1.23 (25), | In General Bid Bulletin No. 22, the referred clause No. 1.23 (25) was reframed as shown.<br>We understand from the referred clause in GBB-22 that on the Viaduct sections, the contractor can drill into the deck of the viaduct | | The Bidder's understanding is correct. |

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| | 25) For the at grade areas concrete footings shall be provided for the walkway.<br>~~25) On the viaduct sections drilling into the deck shall not be permitted and the contractor shall design and install a plinth into which walkway fixings can be attached. The exception to this is the CP05 area where drilling to the deck is permitted subject to the precautions regarding damage to the civil works are approved and implemented.~~ | to fix the supports of walkway to the Viaduct.<br>Kindly confirm. | | |
| 30 | Part -2 Section VI<br>&<br>GBB No.22, ERT-50<br>&<br>133/219, 1.23 (25),<br>25) For the at grade areas concrete footings shall be provided for the walkway.<br>~~25) On the viaduct sections drilling into the deck shall not be permitted and the contractor shall design and~~ | Kindly confirm on the viaduct sections, whether the bidder shall be permitted to install a plinth/ footing into which the walkway fixings can be attached or not.<br>If the bidder is permitted to install a plinth, we also understand that the shear connectors for such plinth arrangement shall be provided by the civil contractor for anchorage between walkway system and the viaduct.<br>Kindly confirm | | The Bidders understanding is incorrect. Any shear connectors or fixing for the walkway shall be by the NS-01 contractor. |

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| | ~~install a plinth into which walkway fixings can be attached. The exception to this is the CP05 area where drilling to the deck is permitted subject to the precautions regarding damage to the civil works are approved and implemented.~~ | | | |
| 31 | Part -2 Section VI<br>&<br>GBB No.22, ERT-50<br>&<br>133/219, 1.23 (25),<br>25) For the at grade areas concrete footings shall be provided for the walkway.<br>~~25) On the viaduct sections drilling into the deck shall not be permitted and the contractor shall design and install a plinth into which walkway fixings can be attached. The exception to this is the CP05 area where drilling to the deck is permitted subject to the precautions~~ | We understand from the referred clause in GBB-22 that on the Viaduct sections, if the contractor is not permitted to drill into the deck of the viaduct to fix the supports of walkway to the Viaduct, the civil contractor provides bolt kind of system to provide anchorage between walkway and the viaduct.<br>Kindly confirm. | | The Bidder's understanding is incorrect. The Contractor shall provide all fixings to the viaduct deck. |

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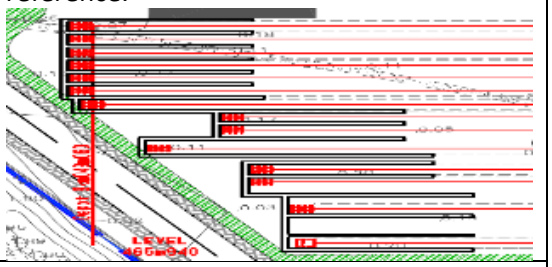
| | ~~regarding damage to the civil works are approved and implemented.~~ | | | |
| 32 | Part -2<br>Section VI, ERT-50, 1.24, Access Platform and Stairs<br>10) Length of the platform should facilitate easy entry and exit into the Trainset for 2 Car length | We understand from the referred clause that the contractor shall supply and install Access Platform and Stairs in the depot stabling areas. The access platforms shall be positioned to allow access to the nearest passenger train doors.<br>Hence, we understand that the bidder need to provide 2 Access platforms with stairs on each side of track to facilitate easy entry and exit into the trainset for 2 car length and the contractor need not to provide a continuous platform for the entire length of train.<br>Kindly confirm. | | The access platform shall be constructed in "U-Shape" as stated in ERT 1.24 11), to allow the access on both sides of the train for 2 car length. The Bidder shall propose the detailed design and location of the stairs subject to Engineer's review and approval.<br><br>Please refer to the drawing below for reference.<br>  |
| 33 | Part 2 Section VI, ERT 619, 7.2 Limited Express Ticket Service , The Limited Express Train Service will connect the Metro Manila and Clark International Airport with stops at | As seat reservation system is a separate system engine apart from automatic fare collection system and there is no particular such technical specification mentioned in RFP, we understand that the development of seat reservation | | The Bidder's understanding is correct. |

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| | Alabang and Buendia.<br><br>The AFC system shall cover the Limited Express Service however unlike the commuter services, the passengers for Limited Express shall be required to validate their SJT and SVC prior to boarding. Ticket validator shall be mounted on Limited Express Platform Screen doors, or any other location proposed by the Contractor, and approved by the Engineer. This validator will ensure that SJT's are valid tickets being used on the Limited Express whilst in the case of SVC's the validator will deduct the fare for taking the Limited Express service. The system performance shall conform to the AFC National Standard. | system is out of Contractor's scope of supply under CP NS-01 tender.<br><br>Please kindly confirm our understanding. | | |
| 34 | Part 2 Section VI, ERT 661, 7.9.5.2 Requirements , z) Central Clearing House System | As per RFP clause, we understand that the following software provision is handled by the existing central clearing house operator at level | | The Bid conditions shall prevail. Please refer to Clause 7.4.1.7. |

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| | i) The CCHS is the archival and computational facility for settlement and apportionment of the transit fare transactions, generated by multiple participants in the multiple transit networks. The following functions are<br>performed by the central clearing house:<br><br>・Financial reconciliation function<br>Blacklist generation management<br>・Card status (including balance information) management<br>・Security key management<br>・SAM management | 4 for the purpose of achieving an interoperability of the existing LRT/MRT smartcard with NSCR and MMSP lines. Hence, CP NS-01 Contractor is not required to provide a separate and independent system of the following components but to only interface with the existing CCHS operator. Please kindly confirm our understanding.<br><br>・CSM initialization and personalization software<br>・Key management software<br>・SAM initialization and personalization software | | |
| 35 | Part -2<br>Section VI<br><br>Clause No. 2.2© , ERT-317, , Secure gateways shall be provided for connection to the internet at Central Control. These two gateways shall be routed to separate Internet Service | As per the Tender clause's we understand that only interface/support for the internet connection shall be in the contractor scope.<br><br>All the Connection fees and other liasoning charges are in the scope of Employer.<br><br>Kindly confirm. | | The Bidder's understanding is incorrect.<br><br>The leased line fees and other associated liasoning charges will be paid by contractor until the end of contract. |

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| | Providers (ISPs) and configured as multi-hosting to ensure the high availability<br>of internet connectivity.<br><br>Please refer ERT-316 Clause 2.2(B) it is stated that, "For connection with the Internet network, Point of Interface (POI) is set up in the OCC. Also, the contractor shall be responsible for connection with the Internet network." | | | |
| 36 | Clause 1.1 ERT-262, , , The Contractor shall be responsible where necessary for re-configuring the Radio System and providing additional hardware at no extra cost to the Employer. | We request you to clearly mention the scope of re-configuring the Radio System and request you to provide the list additional hardware required . | | There is no scope yet on the re-configuring of the Radio System as this is on a "where necessary" basis. Therefore, no additional hardware lists can be provided. |
| 37 | Clause 1.2 ERT-264, , , IEC 62278 Railway applications: specification and demonstration of RAMS | The referred clause is not applicable/relevant to GSM-R. Request you to delete or amend the clause. | | The Clause will be deleted. Please refer to Annex B. |
| 38 | Clause 1.2 ERT-265, , , UNISIG Subset 126 (not yet released) ATO-OB / ATO-TS FFFIS Application layer | The referred clause is not released. Request you to delete or amend the clause. | | The Clause will be deleted. Please refer to Annex B. |

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| 39 | Clause 3.5.2(8) ERT-273, , , A minimum of eight (8) priority levels shall be available for assignment to radio users of varying importance. Priority-setting shall be configurable from the central control. | The referred clause is not applicable/relevant to GSM-R. Only 5 priority levels are supported by GSMR/EIRENE standard.<br>Request you to delete or amend the clause. | | Clause will be amended based on EIRENE standards of 5 Priority Levels.<br>Please refer to Annex B. |
| 40 | Clause 3.5.3(3) ERT-273, , , If access is not granted on the first attempt, all the radios shall automatically re-send the call request without user intervention. The Contractor shall submit to the Engineer for Approval the details on the number of retries available and the duration during which this occurs. | The referred clause is not fully applicable/relevant to GSM-R.<br><br>The railway emergency group call is complained. However, the ordinary group call and broadcast are not complied as they are not applicable to an EIRENE 8/16 network.<br><br>This clause is applicable to tetra tech only.<br>Request you to delete or amend the clause. | | Please refer to EIRENE SRS section 4.3.5. Automatic retry is required for Railway emergency calls. Bidder shall follow EIRENE FRS/SRS standard. |
| 41 | Clause 3.5.3(4) ERT-273, , , The system shall support multi-party voice communications between up to six different parties. The call shall be half-duplex and shall be authorized by the RCW. | The referred clause is not fully applicable/relevant to GSM-R.<br><br>MPTY service is defined for 5 participants in the standard only.<br>Request you to delete or amend the clause | | Clause will be amended based on EIRENE standards of MPTY of 5 Participants. Please refer to Annex B. |

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| 42 | Clause 3.5.3(6) ERT-274, , , A minimum of eight (8) different priority levels shall be available for assignment to users of varying importance. The Radio System's different priorities shall be assigned to each radio and talk group. When the system gets busy, radios with higher priority shall get a traffic channel allocated before radios with lower priority. | The referred clause is not fully applicable/relevant to GSM-R.<br>The eMLPP service in EIRENE is defined for 5 levels & GSMR Standard is also only 5 priority levels.<br><br>Request you to delete or amend the clause | | The Clause will be amended based on EIRENE standards of 5 Priority Levels. Please refer to Annex B. |
| 43 | Clause 3.5.3(6) ERT-274, , , The system shall provide the recent user priority to enhance call continuity. If a call has cleared in a pause in speech, but another user wishes to speak soon after, the priority level of the group is increased for a timed queue. Therefore, call continuity is preserved. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 44 | Clause 3.5.3(7) ERT-274, , , When all voice channels have been assigned and the Radio System is fully loaded, new calls requested shall be queued | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only. | | The Clause has been previously deleted. Please refer to GBB23 |

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| | according to its pre-assigned priorities until a voice channel becomes available. Equal priority users shall be queued on a first-in-first-out basis among themselves. The users shall receive a busy tone indicating that the system is currently busy and the call has been queued. | Request you to delete or amend the clause | | |
| 45 | Clause 3.5.3(23) ERT-276, , , The base station hangs time shall be measured as the time taken for the base station in un-squelch status to squelch status in the absence of PTT signal. The base station hangs time shall be configurable. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause has been previously deleted. Please refer to GBB23 |
| 46 | Clause 3.5.3(24) ERT-276, , , All radios shall remain affiliate to a preferred control channel of a designated base station if the signal strength is at an acceptable level in all circumstances including the base station in local trunking mode. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause has been previously deleted. Please refer to GBB23 |

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| 47 | Clause 3.5.4.2(1) ERT-277, , , Fleet call to all Trains. In a fleet call, the system shall guarantee that the entire fleet is available. Before assigning a channel to a fleet call, the system shall wait for all activity on the users of the communications which comprise the fleet to terminate. As active users end their existing calls, they are in effect put on hold, waiting for the remaining users to become clear. The system will not allow any new calls to be made. When all users are available, the fleet call is granted. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br>The feature which is requested is non-standard does not exist as such. GSM-R VBS does not work this way. The system will not wait with granting the call till all users are in and put the others on hold till then.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 48 | Clause 3.5.4.2(18) ERT-280, , , The Controller shall be able to remotely switch on the microphone and transmitter of the Train radio or Hand-portable and listen to the received audio. | The referred clause is not applicable/relevant to GSM-R.<br>As GSM-R does not support "listening in" feature.<br><br>Request you to delete or amend the clause | | The Clause has been previously deleted. Please refer to GBB23. |
| 49 | Clause 3.5.5(13) ERT-285, , , The Train Identity Number (TID), Radio Identity Number (RIN) shall be | The referred clause is not applicable/relevant to GSM-R.<br>The cab radio is compliant to EIRENE 8/16 | | The Clause will be deleted. Please refer to Annex B. |

# PACKAGE CP NS-01: E&M SYSTEMS AND TRACK WORKS
# General Bid Bulletin No. 32
# Annex A

| Item No. | Volume Section No.<br>Page No.<br>Clause No. / Title<br>Reference Text | Clarification Request | Proposed Revised Text<br>(if any) | Response |
|---|---|---|---|---|
| | alphanumeric. The Train ID will comprise up to 10 alphanumeric characters or as requested by the Operator. | which specifies maximum 8 digits/numbers only.<br><br>Request you to delete or amend the clause | | |
| 50 | Clause 4.8.2 ERT- 301, , , The Contractor shall provide fallback operation for radio base stations to operate in local site operation and maintenance, in the event of failure within the system. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 51 | Clause 4.8.2 ERT- 301, , , In the event of total failure to the base station controller, the subscriber users shall revert to the direct mode operation. | The referred clause is not applicable/relevant to GSM-R.<br>As solution is 1+1 geo-redundant. Failure of one BSC will not affect the users. DMO does not exist in GSM-R.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 52 | Clause 4.8.5(2) ERT- 302, , , The Base Station Control Module shall be co-located with the base station to perform the following as a minimum:<br>Initial Local Mode | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |

# PACKAGE CP NS-01: E&M SYSTEMS AND TRACK WORKS
# General Bid Bulletin No. 32
# Annex A

| Item No. | Volume Section No.<br>Page No.<br>Clause No. / Title<br>Reference Text | Clarification Request | Proposed Revised Text<br>(if any) | Response |
|---|---|---|---|---|
| 53 | Clause 4.8.6 ERT- 302, , , The base station shall as a minimum operates in local mode in one of the following methods:<br>1) Manually from radio management system;<br>2) Automatically upon the detection of the loss of communication link between central equipment and local equipment; and<br>3) Automatically upon the detection of fault tolerance central equipment fails. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 54 | Clause 4.8.6 ERT- 303, , , In local mode, the communication shall be restricted to the radios under the RF coverage zone of the base station only. | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 55 | Clause 4.8.6 ERT- 303, , , Manual switching of the base station to normal operation when operating in local mode shall be possible. Switching shall be achieved either from the base station control | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |

# PACKAGE CP NS-01: E&M SYSTEMS AND TRACK WORKS
# General Bid Bulletin No. 32
# Annex A

| Item No. | Volume Section No. Page No. Clause No. / Title Reference Text | Clarification Request | Proposed Revised Text (if any) | Response |
|---|---|---|---|---|
| | module front panel or the radio management system. | | | |
| 56 | Clause 4.8.7(5) ERT-303, , , The Base station shall as a minimum have an alarm system which shall report the following health status to the radio management system:<br>Local mode; | The referred clause is not applicable/relevant to GSM-R.<br>It is applicable to TETRA only.<br><br>Request you to delete or amend the clause | | The Clause will be deleted. Please refer to Annex B. |
| 57 | Clause 4.9.2(b)(11) ERT-307, , , The following function keys shall, as a minimum, be available on the TR-HMI:<br>11) 1 to 10 with # and * keys for data entry; | Numbers 0 to 9, # and * are the dedicated keys<br><br>Request you to amend the clause. | | The Clause will be amended based on EIRENE standards. Please refer to Annex B. |
| 58 | Part 2 / Section VI - Employer's Requirements, ERT-676, 8 DEPOT FACILITIES, 8.11 Interface Coordination | The bidder's understanding is that the Flooring, Foundation and any other associated civil works for the installation of Depot Equipment is in the scope of Depot Civil Contractor.<br><br>We also understand that the CP NS-01 Contractor's scope is to interface with Depot Civil contractor and to provide necessary inputs for the above mentioned works. | | Contractor shall look into scope details and interface requirements for installation of each of the Depot Equipment as specified in Part A and B of the Appendix 8.1 in the ERT. Contractor shall refer to ERG clause 20, outline interface matrices, ERT clause 8.11, Appendix 8.1, and other relevant bid clauses to determine detail interface requirements with other Contractors. |

# PACKAGE CP NS-01: E&M SYSTEMS AND TRACK WORKS
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## Annex A

| Item No. | Volume Section No.<br>Page No.<br>Clause No. / Title<br>Reference Text | Clarification Request | Proposed Revised Text<br>(if any) | Response |
|---|---|---|---|---|
| | | Kindly confirm. | | |

# Annex B

# PACKAGE CP NS-01: E&M SYSTEMS AND TRACK WORKS
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## Annex B

| ITEM NO. | REFERENCE/CLAUSE/ SECTION | REVISIONS / AMENDMENTS |
|---|---|---|
| **Volume I Part 1 – Bidding Procedures** | | |
| 1 | Section IV Bidding Forms<br>Schedule 1.2-11 Platform Screen Doors<br>Milestone no. 1103<br>Milestone no. 1104<br>Page BF-113 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 2 | Section IV Bidding Forms<br>Schedule 1.3-3 Signaling System<br>Milestone no. 303.1<br>Page BF-133 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 3 | Section IV Bidding Forms<br>Schedule 1.3-3 Signaling System<br>Milestone no. 303.4<br>Page BF-134 and BF-135 | The milestone and its note was removed. Refer to the attachment to this annex. |
| 4 | Section IV Bidding Forms<br>Schedule 1.3-4 Telecommunications | The note for the milestone was amended. Refer to the attachment to this annex. |

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|---|---|---|
| | Milestone no. 403.1<br>Page BF-140 | |
| 5 | Section IV Bidding Forms<br>Schedule 1.3-8<br>Automatic Fare Collection System<br>Milestone no. 803<br>Page BF-160 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 6 | Section IV Bidding Forms<br>Schedule 1.3-11:<br>Platform Screen Doors<br>Milestone no. 1103<br>Page BF-167 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 7 | Section IV Bidding Forms<br>Schedule 1.4-3 Signaling System<br>Milestone no. 303.1<br>Milestone no. 303.4<br>Page BF-187<br>Page BF-189 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 8 | Section IV Bidding Forms<br>Schedule 1.4-4 Telecommunications<br>Milestone no. 403.1<br>Milestone no. 403.4<br>Page BF-194<br>Page BF-195 | The note for the milestone was amended. Refer to the attachment to this annex. |

| | | |
|---|---|---|
| 9 | Section IV Bidding Forms<br>Schedule 1.4-8: Automatic Fare Collection System<br>Milestone no. 803<br>Page BF-215 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 10 | Section IV Bidding Forms<br>Schedule 1.4-11: Platform Screen Doors<br>Milestone no. 1103<br>Milestone no. 1104<br>Page BF-225 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 11 | Section IV Bidding Forms<br>Schedule 1.7: Option for Automatic Train Operation Function<br>Milestone no. O-3.1<br>Milestone no. O-3.3<br>Page BF-237<br>Page BF-238 | The note for the milestone was amended. Refer to the attachment to this annex. |
| 12 | Section IV Bidding Forms<br>Grand Summary<br>Page BF-249 and BF-250 | The bidding form grand summary was amended. Refer to the attachment to this annex. |
| **Volume II Part 2 – Employer's Requirements** | | |
| 13 | ERT 1.20 1) a) | Revised the requirement regarding length of Insulated Rail Joint Glued Type. |
| 14 | ERT-266- 1.2 Standards | Deleted – "IEC 62278 Railway applications: specification and demonstration of RAMS" |

| | | |
|---|---|---|
| 15 | ERT-266- 1.2 Standards | Deleted – “UNISIG Subset 126 (not yet released) ATO-OB / ATO-TS FFFIS Application layer” |
| 16 | ERT 273- 7) System Call Requirements. | Revised: A minimum of “five (5)” priority levels……. |
| 17 | ERT 274- 3) Multi-party Voice Calls. | Revised: The system shall support multi-party voice communications between up to “five (5) participants or” different parties…….. |
| 18 | ERT 274- 5) Multiple Priority Levels. | Revised: A minimum of “five (5)” different priority levels |
| 19 | ERT 275- 5) Multiple Priority Levels. | Deleted Clause:<br>“The system shall provide the recent user priority to enhance call continuity. If a call has cleared in a pause in speech, but another user wishes to speak soon after, the priority level of the group is increased for a timed queue. Therefore, call continuity is preserved.” |
| 20 | ERT-277- 3.5.4.2 -RCW Call Features | Deleted Clause:<br>“1) All Trains Calls<br>Fleet call to all Trains. In a fleet call, the system shall guarantee that the entire fleet is available. Before assigning a channel to a fleet call, the system shall wait for all activity on the users of the communications which comprise the fleet to terminate. As active users end their existing calls, they are in effect put on hold, waiting for the remaining users to become clear. The system will not allow any new calls to be made. When all users are available, the fleet call is granted.” |
| 21 | ERT-285- 3.5.5 Train Radio Operations | Deleted Clause:<br>“13) Use of alphanumeric numbers<br>The Train Identity Number (TID), Radio Identity Number (RIN) shall be alphanumeric. The Train ID will comprise up to 10 alphanumeric characters or as requested by the Operator.” |
| 22 | ERT-301- 4.8.2- Radio Base Station Communications System | Deleted Clauses:<br>“The Contractor shall provide fall back operation for radio base stations to operate in local site operation and maintenance, in the event of failure within the system.<br><br>In the event of total failure to the base station controller, the subscriber users shall revert to the direct mode operation.” |

| | | |
|---|---|---|
| 23 | ERT-302- 4.8.5 Base Station Control Module | Delete Clause:<br>2) Initiate local mode.<br>The front panel of the base station control module shall have indicators for the display of base station status.<br><br>Adjusted Clause:<br><br>“The Base Station Control Module shall be co-located with the base station to perform an interface to the BTS to transmit audio and data signal to central equipment” |
| 24 | ERT-302- 4.8.6 Local Mode | Deleted Section:<br><br>“The base station shall as a minimum operates in local mode in one of the following methods:<br>1) Manually from radio management system;<br>2) Automatically upon the detection of the loss of communication link between central equipment and local equipment; and<br>3) Automatically upon the detection of fault tolerance central equipment fails.<br>In local mode, the communication shall be restricted to the radios under the RF coverage zone of the base station only.<br>Manual switching of the base station to normal operation when operating in local mode shall be possible. Switching shall be achieved either from the base station control module front panel or the radio management system.” |
| 25 | ERT-302- 4.8.6 Health Status Reporting | Deleted:<br>“5) Local Mode” |
| 26 | ERT-306- 4.9.2 Train Human-Machine Interface | Revised: “0 to 9”<br>The following function keys shall, as a minimum, be available on the TR-HMI:<br>11) “0 to 9” with # and * keys for data entry; |
| 27 | Part 2 Section VI Technical Requirements AFC ERT 654 | Amended Clause 7.8.4.1 a) |

| Volume III Part 2 – Employer's Requirements d) Employer's Drawings | | |
|---|---|---|
| 28 | Volume III Part 2- Employers Requirements Drawings (a) | Drawing MCRP-DWG-GEN-TK-0206 REV. 03 has been revised to drawing MCRP-DWG-GEN-TK-0206 REV. 04 |
| 29 | Volume III Part 2- Employers Requirements Drawings (a) | Drawing MCRP-DWG-GEN-TK-0117 REV. 03 has been revised to drawing MCRP-DWG-GEN-TK-0117 REV. 04 |

# Annex B – Attachment 1

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | **Sub-total for Milestone No. 1102** | | | | | | |
| **1103** | **Installation and Testing** | | | | | | |
| | Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one sixth (1/6) of the amount of Milestone No. 1103 per station.) | - | - | - | - | - | - |
| **1104** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Tests for the platform screen doors, Commissioning Tests, and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment will be made based on the number of stations included within any completion certificates at the rate of one sixth (1/6) of the amount of Milestone No. 1104 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | **Sub-total for Milestone No. 1102** | | | | | | |
| **1103** | **Installation and Testing** | | | | | | |
| | Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one ~~seventh~~ sixth (1/~~7~~6) of the amount of Milestone No. 1103 per station.) | - | - | - | - | - | - |
| **1104** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Tests for the platform screen doors, Commissioning Tests, and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment will be made based on the number of stations included within any completion certificates at the rate of one ~~seventh~~ sixth (1/~~7~~6) of the amount of | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 302.5 | Transportation of signaling equipment and associated accessories from the place of manufacture to the Philippines. | sum | 1 | | | | |
| | (Payment for each shipment arriving safely at the port of unloading in the Philippines will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| 302.6 | Delivery to the Contractor's secure storage area of signaling equipment and associated accessories. | sum | 1 | | | | |
| | (Payment for each batch delivered to the Contractor's storage area and accepted by the Engineer will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 302** | | | | | | |
| **303** | **Construction, Installation and Testing** | | | | | | |
| 303.1 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 303.1 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 302.5 | Transportation of signaling equipment and associated accessories from the place of manufacture to the Philippines. | sum | 1 | | | | |
| | (Payment for each shipment arriving safely at the port of unloading in the Philippines will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| 302.6 | Delivery to the Contractor's secure storage area of signaling equipment and associated accessories. | sum | 1 | | | | |
| | (Payment for each batch delivered to the Contractor's storage area and accepted by the Engineer will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 302** | | | | | | |
| **303** | **Construction, Installation and Testing** | | | | | | |
| 303.1 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one half~~sixth~~ (1/~~6~~2) of the amount of Milestone No. 303.1 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 303.2 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all Operating Control Center equipment in the Depot, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made on completion of the above work.) | - | - | - | - | - | - |
| 303.3 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 303.2 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all Operating Control Center equipment in the Depot, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made on completion of the above work.) | - | - | - | - | - | - |
| 303.3 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |
| ~~303.4~~ | ~~Delivery, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of on-board equipment, and obtaining acceptance thereof from the Engineer.~~ | ~~sum~~ | ~~1~~ | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| **304** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **305** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies), and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made upon completion of the delivery of all spare parts, tools and testing equipment.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | ~~(Payment will be made per train on completion of the integrated tests for each train at the rate of one twenty-sixth (1/26) of the amount of Milestone No. 303.4 per train.)~~ | ~~-~~ | ~~-~~ | ~~-~~ | ~~-~~ | ~~-~~ | ~~-~~ |
| | ~~**Sub-total for Milestone No. 303**~~ | | | | | | |
| **304** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **305** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies), and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 403.1 per station.) | - | - | - | - | - | - |
| 403.2 | Delivery to the Site, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 403** | | | | | | |
| **404** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 403.1 per station.)~~(Payment will be made based on completion of the above work.)~~ | - | - | - | - | - | - |
| 403.2 | Delivery to the Site, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 403** | | | | | | |
| **404** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | tests, site acceptance tests and integrated tests for all subsystems) of all automatic fare collection system equipment and accessories at the stations, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 803 per station.) | - | - | - | - | - | - |
| **804** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **805** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies) | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | tests, site acceptance tests and integrated tests for all subsystems) of all automatic fare collection system equipment and accessories at the stations, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 803 per station.)~~(Payment will be made based on completion of the above work.)~~ | - | - | - | - | - | - |
| **804** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **805** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | **Sub-total for Milestone No. 1102** | | | | | | |
| **1103** | **Installation and Testing** | | | | | | |
| | Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 1103 per station.) | - | - | - | - | - | - |
| **1104** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Tests for the platform screen doors, Commissioning Tests, and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment will be made following issuance of the completion certificate for the station) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | **Sub-total for Milestone No. 1102** | | | | | | |
| **1103** | **Installation and Testing** | | | | | | |
| | Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one half (1/2) of the amount of Milestone No. 1103 per station.)~~(Payment will be made based on completion of the above work.)~~ | - | - | - | - | - | - |
| **1104** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Tests for the platform screen doors, Commissioning Tests, and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment will be made following issuance of the completion certificate for the station) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 302.5 | Transportation of signaling equipment and associated accessories from the place of manufacture to the Philippines. | sum | 1 | | | | |
| | (Payment for each shipment arriving safely at the port of unloading in the Philippines will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| 302.6 | Delivery to the Contractor's secure storage area of signaling equipment and associated accessories. | sum | 1 | | | | |
| | (Payment for each batch delivered to the Contractor's storage area and accepted by the Engineer will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 302** | | | | | | |
| **303** | **Construction, Installation and Testing** | | | | | | |
| 303.1 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 303.1 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 302.5 | Transportation of signaling equipment and associated accessories from the place of manufacture to the Philippines. | sum | 1 | | | | |
| | (Payment for each shipment arriving safely at the port of unloading in the Philippines will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| 302.6 | Delivery to the Contractor's secure storage area of signaling equipment and associated accessories. | sum | 1 | | | | |
| | (Payment for each batch delivered to the Contractor's storage area and accepted by the Engineer will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 302** | | | | | | |
| **303** | **Construction, Installation and Testing** | | | | | | |
| 303.1 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one ~~ninth~~ eighteenth (1/18~~9~~) of the amount of Milestone No. 303.1 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | (Payment will be made per train on completion of the integrated tests for each train at the rate of one forty-ninth (1/49) of the amount of Milestone No. 303.4 per train.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 303** | | | | | | |
| **304** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **305** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies), and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | (Payment will be made per train on completion of the integrated tests for each train at the rate of one forty-nineteenth (1/1949) of the amount of Milestone No. 303.4 per train.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 303** | | | | | | |
| **304** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **305** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies), and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 403.1 per station.) | - | - | - | - | - | - |
| 403.2 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all Operating Control Center equipment in the Depot, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made on completion of the above work) | - | - | - | - | - | - |
| 403.3 | Delivery to the Site, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one ~~ninth~~ eighteenth (1/~~9~~18) of the amount of Milestone No. 403.1 per station.) | - | - | - | - | - | - |
| 403.2 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all Operating Control Center equipment in the Depot, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made on completion of the above work) | - | - | - | - | - | - |
| 403.3 | Delivery to the Site, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 403.4 | Delivery, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of on-board equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made per train on completion of the integrated tests for each train at the rate of one forty-ninth (1/49) of the amount of Milestone No. 403.4 per train.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 403** | | | | | | |
| **404** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| 403.4 | Delivery, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of on-board equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made per train on completion of the integrated tests for each train at the rate of one ~~nineteenth~~ forty-ninth (1/~~19~~49) of the amount of Milestone No. 403.4 per train.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. 403** | | | | | | |
| **404** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting, and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | tests, site acceptance tests and integrated tests for all subsystems) of all automatic fare collection system equipment and accessories at the stations, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 803 per station.) | - | - | - | - | - | - |
| **804** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **805** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies) | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | tests, site acceptance tests and integrated tests for all subsystems) of all automatic fare collection system equipment and accessories at the stations, and obtaining acceptance thereof from the Engineer. | | | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one ~~ninth~~ eighteenth (1/~~9~~18) of the amount of Milestone No. 803 per station.) | - | - | - | - | - | - |
| **804** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Testing and Commissioning and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment for the above Milestone will be made upon completion of all required tests and commissioning.) | - | - | - | - | - | - |
| **805** | **Spare Parts, Special Tools, Testing Equipment** | | | | | | |
| | Delivery to the Site of spare parts, consumables, special tools, testing equipment and measurement instruments, including drawings and catalogues in English (original plus 5 hard copies) | sum | 1 | | | | |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | **Sub-total for Milestone No. 1102** | | | | | | |
| **1103** | **Installation and Testing** | | | | | | |
| | Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one eighteenth (1/18) of the amount of Milestone No. 1103 per station.) | - | - | - | - | - | - |
| **1104** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Tests for the platform screen doors, Commissioning Tests, and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment will be made based on the number of stations included within any completion certificates at the rate of one eighteenth (1/18) of the amount of Milestone No. 1104 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| | **Sub-total for Milestone No. 1102** | | | | | | |
| **1103** | **Installation and Testing** | | | | | | |
| | Delivery to the stations, installation, and testing (including pre-installation tests, site acceptance tests and integrated tests for all related subsystems) of all platform screen doors, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made based on completion of the above work for each station at the rate of one ~~ninth~~ eighteenth (1/~~9~~18) of the amount of Milestone No. 1103 per station.) | - | - | - | - | - | - |
| **1104** | **System Acceptance Tests, Integrated Testing and Commissioning** | | | | | | |
| | Conducting and obtaining the Engineer's acceptance of, the System Acceptance Tests, Integrated Tests for the platform screen doors, Commissioning Tests, and Completion of Test Running and Trial Running, and obtaining the Safety Certificate from the relevant Authority for the commercial operation of the railway. | sum | 1 | | | | |
| | (Payment will be made based on the number of stations included within any completion certificates at the rate of one ~~ninth~~ eighteenth (1/18~~9~~) of the amount of | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| O2.5 | Transportation of ATO equipment and associated accessories from the place of manufacture to the Philippines. | sum | 1 | | | | |
| | (Payment for each shipment arriving safely at the port of unloading in the Philippines will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| O2.6 | Delivery to the Contractor's secure storage area of ATO equipment and associated accessories. | sum | 1 | | | | |
| | (Payment for each batch delivered to the Contractor's storage area and accepted by the Engineer will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. O-2** | | | | | | |
| **O-3** | **Construction, Installation and Testing** | | | | | | |
| O-3.1 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one twenty-sixth (1/26) of the amount of Milestone No. O-3.1 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| O2.5 | Transportation of ATO equipment and associated accessories from the place of manufacture to the Philippines. | sum | 1 | | | | |
| | (Payment for each shipment arriving safely at the port of unloading in the Philippines will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| O2.6 | Delivery to the Contractor's secure storage area of ATO equipment and associated accessories. | sum | 1 | | | | |
| | (Payment for each batch delivered to the Contractor's storage area and accepted by the Engineer will be made in proportion to the total quantities required.) | - | - | - | - | - | - |
| | **Sub-total for Milestone No. O-2** | | | | | | |
| **O-3** | **Construction, Installation and Testing** | | | | | | |
| O-3.1 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all station indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made on completion of the above work for each station at the rate of one ~~sixth~~ twenty-sixth (1/~~6~~26) of the amount of Milestone No. O-3.1 per station.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| O-3.2 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |
| O-3.3 | Delivery, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of on-board equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made per train on completion of the integrated tests for each train at the rate of one seventy-fifth (1/75) of the amount of Milestone No. O-3.3 per train.) | - | - | - | - | - | - |

| Milestone No. | Work Description (Milestone) | Unit | Quantity | Unit Rate/Price | | Amount | |
|---|---|---|---|---|---|---|---|
| | | | | Local | Foreign | Local | Foreign |
| O-3.2 | Delivery to the Site, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of all outdoor and indoor equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made for fully tested quantities of equipment that have been accepted by the Engineer in proportion to the total quantities required.) | - | - | - | - | - | - |
| O-3.3 | Delivery, installation and testing (including pre-installation tests, site acceptance tests and integrated tests for all subsystems) of on-board equipment, and obtaining acceptance thereof from the Engineer. | sum | 1 | | | | |
| | (Payment will be made per train on completion of the integrated tests for each train at the rate of one ~~twenty-sixth~~seventy-fifth (1/75~~26~~) of the amount of Milestone No. O-3.3 per train.) | - | - | - | - | - | - |

# GRAND SUMMARY

**Contract Name:** Procurement of Package CP NS-01: E&M Systems and Track Works for the Malolos–Clark Railway Project and the North South Railway Project-South Line (Commuter)

**Bid Price is:**
Local Currency: _____ (in figures)
(with VAT and with Provisional Sums)_____ (in words)
and
Foreign Currency: _____ (in figures)
(without VAT and with Provisional Sums) _____ (in words)

| Schedules | Page | Amount | |
|---|---|---|---|
| | | Local (PHP) | Foreign (JPY) |
| Schedule 1.1: Total Amount of Section 1 | | | |
| Schedule 1.2: Total Amount of Section 2 | | | |
| Schedule 1.3: Total Amount of Section 3 | | | |
| Schedule 1.4: Total Amount of Section 4 | | | |
| Performance Security for Sections 1-4 inclusive* | | | |
| **Sub-Total of Schedules 1.1 through 1.4 above** | (A) | | |
| Schedule 1.5: Daywork Schedule – Not used | | - | - |
| Schedule 1.6: Provisional Sums | | 156,500,000 | 1,005,000,000 |
| Schedule 1.7: Option for ATO Function* | | | |
| **Sub-Total of Schedules 1.5, 1.6 and 1.7** | (B) | | |
| **Summary of Bid Amount excluding Value Added Tax (C)=(A)+(B)** | (C) | (CL) | (CF) |
| Value Added Tax (12%) | (D) | (DL) | |
| **Summary of Total Bid Amount including Value Added Tax [(E)=(C)+(D)]** | (E) | (EL) | (EF=CF) |

# GRAND SUMMARY

**Contract Name:** Procurement of Package CP NS-01: E&M Systems and Track Works for the Malolos–Clark Railway Project and the North South Railway Project-South Line (Commuter)

**Bid Price is:**
Local Currency: _____ (in figures)
(with VAT and with Provisional Sums)_____ (in words)
and
Foreign Currency: _____ (in figures)
(without VAT and with Provisional Sums) _____ (in words)

| Schedules | Page | Amount | |
|---|---|---|---|
| | | **Local (PHP)** | **Foreign (JPY)** |
| Schedule 1.1: Total Amount of Section 1 | | | |
| Schedule 1.2: Total Amount of Section 2 | | | |
| Schedule 1.3: Total Amount of Section 3 | | | |
| Schedule 1.4: Total Amount of Section 4 | | | |
| Performance Security for Sections 1-4 inclusive* | | | |
| **Sub-Total of Schedules 1.1 through 1.4 above** | (A) | | |
| Schedule 1.5: Daywork Schedule – Not used | | - | - |
| Schedule 1.6: Provisional Sums | | 156,500,000 | 1,005,000,000 |
| Schedule 1.7: Option for ATO Function* | | | |
| **Sub-Total of Schedules 1.5, 1.6 and 1.7** | (B) | | |
| **Summary of Bid Amount excluding Value Added Tax (C)=(A)+(B)** | (C) | (CL) | (CF) |
| Value Added Tax (12%)<br>~~DL=(CL+CF x Exchange rate) x 12%~~ | (D) | (DL) | |
| **Summary of Total Bid Amount including Value Added Tax [(E)=(C)+(D)]** | (E) | (EL) | (EF=CF) |

Notes:

* Payment due to the Contractor for providing the Performance Security will be made on a pro rata monthly basis from the Commencement Date until the end of the Defects Notification Period, with actual payment commencing in the month in which the original of the Performance Security is issued to the Employer. This payment method will apply retrospectively to any increase required in the value of the Performance Security due to an increase in the Contract Price, including an increase due to the Employer taking up the Option in respect of the above mentioned ATO Function.

(1) The Bidder shall show the amount in the columns 'Local Currency' and 'Foreign Currency', respectively. In the case of more than one foreign currency, the Bidder shall split the column Foreign Currency in two.

Name of Bidder _____

Signature of Bidder _____ Date _____

Notes:

* Payment due to the Contractor for providing the Performance Security will be made on a pro rata monthly basis from the Commencement Date until the end of the Defects Notification Period, with actual payment commencing in the month in which the original of the Performance Security is issued to the Employer. This payment method will apply retrospectively to any increase required in the value of the Performance Security due to an increase in the Contract Price, including an increase due to the Employer taking up the Option in respect of the above mentioned ATO Function.

(1) The Bidder shall show the amount in the columns 'Local Currency' and 'Foreign Currency', respectively. In the case of more than one foreign currency, the Bidder shall split the column Foreign Currency in two.

~~(2) The Value Added Tax (VAT) for the Foreign Currency portion shall be converted to the Local Currency according to ITB 37.1 and added to the VAT for the Local Currency portion.~~

Name of Bidder _____

Signature of Bidder _____ Date _____

For each weld, the welding records and test records shall be presented in a format acceptable to the Engineer.

## 1.19 Buffer Stops

1) Buffer Stops on the main line and depot test track: The Contractor shall provide friction sliding buffer stops and concrete stop block at the ends of the main lines. These shall be capable of stopping a train with a capacity of 10 car train with axle load 16 ton at 12.5 km/h impact speed; over a distance of 12.5 m, and train weight of empty train at 7.5 km/h impact speed over a distance of 7.0 m respectively;

2) Buffer Stops in the Depot: The contractor shall provide fabricated buffer stop at all track ends in the Depot. These shall be capable of stopping a train with a capacity of weight of empty train at 7.5 km/h impact speed; over a distance of 7.0 m; and

3) The Buffer stops shall be if an insulated type so as not to short-circuit the track.

4) The buffer stops shall be positioned to enable 10 cars trains to be stabled without hindering service operations or protruding beyond fouling points.

5) Buffer stops installed on the mainline shall be equipped lights.

## 1.20 Insulated Rail Joint Glued Type

1) General

   a) All glued insulated rail joints shall be factory made and welded into the track. Each joint shall be fabricated from two (2) rail. Each IRJ length shall be 9m long, and absolute minimum shall be 6m which that shall be precisely cut perpendicular to the rail line. This technique for matching rail ends shall be strictly applied and any joint discovered to have the jointed ends matched in any other way shall be rejected;

   b) The fishplates shall be full contact type for the glued type of joint;

   c) The end plate (fiber glassed) shall be 5-6mm thickness; and

   d) All the main line insulated joints shall be the 6-hole type of the Glued type (GIJ) that is of a standard design. The insulated joint shall be designed for CWR forces and shall meet a European or AREMA Standard.

2) Installed tolerances, with 1m Straight Edge

   a) Vertical Dip Nil.

   b) Vertical Peak +0.3 mm.

   c) Lateral, gauge face - 0.2/ +0.3 mm no gauge reduction.

3) Materials

   a) Fishplates shall be quenched and tempered carbon steel in accordance with UIC Code 864-4/0.

   b) Bolts shall be high-strength bolts and shall comply with the requirements of ASTM A490 and UIC 864-2/0 for Strength Category 8.8. Washers shall comply with the requirements UIC 864-3/0 for steel spring washers.

d) Welds showing a response at any level that is identified as a crack or lack of fusion shall not be acceptable.

8) Consolidated Welding Reports

For each weld, the welding records and test records shall be presented in a format acceptable to the Engineer.

## 1.19 Buffer Stops

1) Buffer Stops on the main line and depot test track: The Contractor shall provide friction sliding buffer stops and concrete stop block at the ends of the main lines. These shall be capable of stopping a train with a capacity of 10 car train with axle load 16 ton at 12.5 km/h impact speed; over a distance of 12.5 m, and train weight of empty train at 7.5 km/h impact speed over a distance of 7.0 m respectively;

2) Buffer Stops in the Depot: The contractor shall provide fabricated buffer stop at all track ends in the Depot. These shall be capable of stopping a train with a capacity of weight of empty train at 7.5 km/h impact speed; over a distance of 7.0 m; and

3) The Buffer stops shall be if an insulated type so as not to short-circuit the track.

4) The buffer stops shall be positioned to enable 10 cars trains to be stabled without hindering service operations or protruding beyond fouling points.

5) Buffer stops installed on the mainline shall be equipped lights.

## 1.20 Insulated Rail Joint Glued Type

1) General

a) All glued insulated rail joints shall be factory made and welded into the track. Each joint shall be fabricated from two (2) rail. Each IRJ length shall be ~~with each rail not less than~~ 9m long, and absolute minimum shall be 6m which that shall be precisely cut perpendicular to the rail line. This technique for matching rail ends shall be strictly applied and any joint discovered to have the jointed ends matched in any other way shall be rejected;

b) The fishplates shall be full contact type for the glued type of joint;

c) The end plate (fiber glassed) shall be 5-6mm thickness; and

d) All the main line insulated joints shall be the 6-hole type of the Glued type (GIJ) that is of a standard design. The insulated joint shall be designed for CWR forces and shall meet a European or AREMA Standard.

2) Installed tolerances, with 1m Straight Edge

a) Vertical Dip Nil.

b) Vertical Peak +0.3 mm.

c) Lateral, gauge face - 0.2/ +0.3 mm no gauge reduction.

3) Materials

a) Fishplates shall be quenched and tempered carbon steel in accordance with UIC Code 864-4/0.

The Radio Systems shall as a minimum be compliant with the following or equivalent standards:

- TIA-EIA-222 H - Structural Standard for Steel Antenna Towers and Antenna Supporting Structures.

GSM-R Specific standards are:

UNISIG Subset 093 Quality Service Requirements

UIC 950 EIRENE Functional Requirements Specification v8.0.0, 21 December 2015 or later version.

UIC 951 EIRIENE System Requirements Specification v16.0.0, 21 December 2015 or later version.

The provision of the Radio Communications System shall be compliant with local Governmental laws and regulations.

The Contractor shall propose Digital Radio systems that are:

- Proven in service and commonly used in railways;
- Suitable and can meet the operational requirements for this project;
- Complies with the description in this Clause.

The contractor shall include in their submission, the standards that apply to the proposed Radio Systems.

## 2. SCOPE OF THE WORKS

2.1 General

The System shall be supplied with an Inter System Interface (ISI) for interfacing with other manufacturer's Radio Systems for roaming of trains of adjacent projects.

The Contractor shall supply packet-switched radio systems with an IP backbone. The GSM-R response times shall be compliant with the signaling system requirements for the ultimate number of Base Stations, which can be supported by the Central Radio System equipment.

2.2 Scope of Supply

The Radio System shall include, but not be limited to, the following:

a) Central control equipment including zone controller and central switch;

b) Base stations including the radio site controller, base radios, environmental alarm system, and RF distribution system;

c) Radio access units;

d) Radio control workstations and associated hardware;

e) GSM-R hand-portable radios with accessories shall be similar to a handphone style/shape;

f) Battery chargers for hand-portable radios;

g) Train cab radios complete with a radio transceiver, Human-Machine Interface (HMI) interfacing unit, and power supply equipment, including train-borne antennas;

**Figure 1.1 The example of the Radio system configuration**

1.2 Standards

The Radio Systems shall as a minimum be compliant with the following or equivalent standards:

- ~~IEC 62278 Railway applications: specification and demonstration of RAMS~~
- TIA-EIA-222 H - Structural Standard for Steel Antenna Towers and Antenna Supporting Structures.

GSM-R Specific standards are:

UNISIG Subset 093 Quality Service Requirements

~~UNISIG Subset 126 (not yet released) ATO-OB / ATO-TS FFFIS Application layer~~

UIC 950 EIRENE Functional Requirements Specification v8.0.0, 21 December 2015 or later version.

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d) Radio control workstations and associated hardware;

speak at any one time. It shall, however, be possible for a Controller to interrupt the talking member. These calls shall be half-duplex and shall be permitted to all users.

3) Broadcast call

The broadcast call shall be a one-way call from a single user to all users of the same call group within a pre-defined area. Only the OCC shall be permitted to initiate a broadcast call.

4) Data Call:

The System shall support the following:

a) Unprotected data

b) Protected data

c) Pre-formatted/pre-defined text status messages from the train radio, hand-portable radios, or the OCC.

d) The system shall have the facility of transferring data from the train to the OCC.

The system should be supplied with a Packet Data Gateway (PDG) as per ETSI or equivalent standards/guidelines. External access to the Radio System through the PDG shall be firewall protected.

5) Emergency Call

Train-borne mobile, hand-portables, and the Operation Control Center (OCC) shall be permitted to initiate emergency calls. There shall be two types of emergency calls:

a) Train Emergency call: The train emergency call shall be automatically routed to the designated jurisdiction control Traffic Controller; and

b) Shunting emergency call: The Shunting emergency call shall be sent to all users involved in shunting operations.

The radio shall periodically check the availability of a base station. Once a base station is detected again, the radio shall switch back to the normal mode of operation.

The user shall be informed by visual and audible alarms.

This feature might not apply to all users and therefore shall be configurable by the administrator of the system.

The Contractor shall propose the details of the preferred backup mode of operation.

6) Train PA Call

It shall be possible for the OCC to access the Train-borne PA system and make pre-recorded or live announcements to individual trains, a group of trains, or all trains in a section.

7) System Call Requirements

A minimum of five (5) priority levels shall be available for assignment to radio users of varying importance. Priority-setting shall be configurable from the central control.

The Radio System shall as minimum support the communication between various parties by the following matrix:

d) The system shall have the facility of transferring data from the train to the OCC.

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A minimum of ~~eight~~ five (5~~8~~) priority levels shall be available for assignment to radio users of varying importance. Priority-setting shall be configurable from the central control.

The Radio System shall as minimum support the communication between various parties by the following matrix:

**Table 3.5.2.1: System Voice Call Requirements**

| | | OCC | SCR | Train | Hand-portable | PBX extension |
|---|---|---|---|---|---|---|

**Table 3.5.2.1: System Voice Call Requirements**

| Voice Calls | | OCC | SCR | Train | Hand-portable | PBX extension |
|---|---|---|---|---|---|---|
| | OCC | | yes | yes | yes | yes** |
| | SCR | Yes | yes | yes | yes | yes ** |
| | Train Radio | Yes | yes | yes* | yes | yes* |
| | Hand-portable | Yes | yes | yes* | yes | yes ** |
| | PBX extension | | yes | | yes ** | |

* - Calls authorized by OCC

** - Calls between designated radios and designated PBX extensions

All calls initiated by the traffic controller/crew controller/Chief Controller to the train borne mobile shall be able to use either the Train ID or the Radio ID number.

All calls meant for a hand-portable radio shall use the Radio ID Number.

Calls originating from Traffic Controller/Chief Controller and the train radio shall have overriding priority over all other calls.

3.5.3 System Features

1) User Validation

When a user attempts to gain an entry into the system, its Radio identity number (RIN) shall be verified and validated before permitting access to the Radio System. Users without valid RIN shall be barred from accessing the system.

2) Random Retries

If access is not granted on the first attempt, all the radios shall automatically re-send the call request without user intervention. The Contractor shall submit to the Engineer for Approval the details on the number of retries available and the duration during which this occurs.

3) Multi-party Voice Calls

The system shall support multi-party voice communications between up to five (5) participants or different parties. The call shall be half-duplex and shall be authorized by the RCW.

4) Continuous Channel Updating

The control channel shall continuously transmit assignment information allowing a user to join calls already in progress even if a user misses the initial assignment due to a momentary signal fade or other effects.

5) Multiple Priority Levels

A minimum of eight (8) different priority levels shall be available for assignment to users of varying importance. The Radio System's different priorities shall be assigned to each radio and talk group. When the system gets busy, radios with higher priority shall get a traffic channel allocated before radios with lower priority.

| | | OCC | SCR | Train | Hand-portable | PBX extension |
|---|---|---|---|---|---|---|
| Voice Calls | OCC | | yes | yes | yes | yes** |
| | SCR | Yes | yes | yes | yes | yes ** |
| | Train Radio | Yes | yes | yes* | yes | yes* |
| | Hand-portable | Yes | yes | yes* | yes | yes ** |
| | PBX extension | | yes | | yes ** | |

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The system shall support multi-party voice communications between up to ~~six~~ five (5) participants or different parties. The call shall be half-duplex and shall be authorized by the RCW.

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The control channel shall continuously transmit assignment information allowing a user to join calls already in progress even if a user misses the initial assignment due to a momentary signal fade or other effects.

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Emergency calls are assigned the highest priority. This shall be ensured even as a ruthless pre-emption.

**Table 3.5.2.1: System Voice Call Requirements**

| Voice Calls | | OCC | SCR | Train | Hand-portable | PBX extension |
|---|---|---|---|---|---|---|
| | OCC | | yes | yes | yes | yes** |
| | SCR | Yes | yes | yes | yes | yes ** |
| | Train Radio | Yes | yes | yes* | yes | yes* |
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Emergency calls are assigned the highest priority. This shall be ensured even as a ruthless pre-emption.

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The system shall allow the RCW to interrupt ongoing radio traffic, should it be necessary.

6) Out of Range Indication

Audible and visual indications shall be available to inform the user when the radio is out of the RF coverage range of the Radio System. The indication shall be generated automatically when a request for the channel is not acknowledged or when the radio fails to receive control channel information. Audible indication shall be automatically disabled after a few seconds while the visual indication shall remain until the radio moves back into the coverage range.

7) User Registration

A user shall automatically be registered after successfully logging on to the Radio System under the RF coverage zone of a base station. The Radio System shall have a record of the location of all active users such that frequencies are assigned only at the RF coverage zone of the base station where group members are present. The Radio System shall not assign a channel at a base station where group members are not present.

The Radio System shall ensure that a user is only registered within one Base Station RF coverage zone at any one time. The registration shall be continuously updated to reflect the current user identities and locations.

8) User De-Registration

The Radio System shall de-register users to ensure that no channels are assigned at a base station unnecessarily. The Contractor shall submit to the Engineer for Approval of the details of the de-registration.

9) Handover

The Radio System shall support seamless handover across all the RF coverage zones of base stations in the Radio System such that all calls in progress regardless of the call types and call modes shall be maintained without interruption to an ongoing call. The Contractor shall submit details of the handover process.

10) Dynamic Re-Grouping

Radios in different talk-groups shall establish a new talk-group automatically on the receipt and acknowledgment of re-grouping instructions sent over the air by the Radio System. There shall not be any limitation on the number of radios in each talk group and the combination talk group arrangements.

11) System Partition

The transceivers of base stations shall be configurable to process both all radio calls and only train radio calls.

12) System Call

A system call shall be a one-way broadcast call to all the radio users in the Radio System. A system call shall be initiated only from the RCW with a predefined priority level.

A system call shall be initiated in a "polite" or "pre-emption" mode from the RCW logged in with the highest priority only. The "polite" mode shall wait until all the radios are idling before the system call can proceed. The "pre-emption" mode shall

assigned to each radio and talk group. When the system gets busy, radios with higher priority shall get a traffic channel allocated before radios with lower priority.

Emergency calls are assigned the highest priority. This shall be ensured even as a ruthless pre-emption.

~~The system shall provide the recent user priority to enhance call continuity. If a call has cleared in a pause in speech, but another user wishes to speak soon after, the priority level of the group is increased for a timed queue. Therefore, call continuity is preserved.~~

The system shall allow the RCW to interrupt ongoing radio traffic, should it be necessary.

6) Out of Range Indication

Audible and visual indications shall be available to inform the user when the radio is out of the RF coverage range of the Radio System. The indication shall be generated automatically when a request for the channel is not acknowledged or when the radio fails to receive control channel information. Audible indication shall be automatically disabled after a few seconds while the visual indication shall remain until the radio moves back into the coverage range.

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11) System Partition

The transceivers of base stations shall be configurable to process both all radio calls and only train radio calls.

12) System Call

18) Call Hold for Telephone Interconnect Call

The network shall allow the user to temporarily exit from an existing call by putting the call on hold, however, it shall be possible for the user to rejoin the call on hold at any time.

19) Call Waiting for Telephone Interconnect Call

The Radio System shall notify a radio user, who is engaged on an established call, that another call is waiting to be connected.

20) Call Barring

It shall be possible, using a network management system, to prevent individual radio users from making calls to or receiving calls from certain categories of radio users within the network.

3.5.4 Radio Control Workstation (RCW) [Dispatcher] Functionality

3.5.4.1 General

The Contractor shall detail the expansion ability of their RCW Dispatcher network within the switch configuration that has been offered. The radio system shall support a hierarchical dispatcher configuration for the OCC. The higher a particular user is in the hierarchy, the greater their priority within the network.

The RCW shall provide controllers with full functionality with ease of operation and enable reliable communication between users. An unanswered call that has not been acknowledged, shall result in an audible "beep" which shall be made periodically until all calls are acknowledged.

The RCW system shall enable as a minimum the types of the call given below to be initiated by the OCC/Chief Controller/Traffic Controller to the Trains. The Train Controller shall be able to establish these calls without knowing the Radio IDs of the radios involved.

3.5.4.2 RCW Call Features

1) Train Group ID Call

The Train Group ID is a Radio ID which will be dynamically allocated by the radio system to a particular group of radios installed on Trains.

The Train Group IDs will also be transparent to all the Train controller operators. During normal operation, there will be no requirement for a Train Controller to utilize any of these IDs in calling a particular Train or group of Trains.

The OCC controller shall input the TID in the RCW or the system shall obtain it from Signaling System. The RCW, through the table in the RCW database, will cross-reference the relevant Train Group ID and establish the relevant call automatically.

2) Base Station ID Call

To determine the geographic area from which a call originates the Radio System control shall log which Base Station site all radio users are registered on. This information shall be updated in real-time. The controller using the RCW shall be able to poll a particular user to determine their location.

3) Train Radio Registration

When a Train begins a new run, the radio system shall receive the new functional Train Identity (TID) via the Radio/ATS interface, which will be entered automatically

acknowledged, shall result in an audible "beep" which shall be made periodically until all calls are acknowledged.

The RCW system shall enable as a minimum the types of the call given below to be initiated by the OCC/Chief Controller/Traffic Controller to the Trains. The Train Controller shall be able to establish these calls without knowing the Radio IDs of the radios involved.

3.5.4.2 RCW Call Features

~~1) All Trains Calls~~

~~Fleet call to all Trains. In a fleet call, the system shall guarantee that the entire fleet is available. Before assigning a channel to a fleet call, the system shall wait for all activity on the users of the communications which comprise the fleet to terminate. As active users end their existing calls, they are in effect put on hold, waiting for the remaining users to become clear. The system will not allow any new calls to be made. When all users are available, the fleet call is granted.~~

2) Train Group ID Call

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The Train Group IDs will also be transparent to all the Train controller operators. During normal operation, there will be no requirement for a Train Controller to utilize any of these IDs in calling a particular Train or group of Trains.

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4) Train Radio Registration

When a Train begins a new run, the radio system shall receive the new functional Train Identity (TID) via the Radio/ATS interface, which will be entered automatically through the ATS. The Radio System shall validate that an authorized TID has been received and shall allocate a Trunking Group ID to the Train.

The TID assigned by the ATS shall be a combination of train number, direction, and crew number.

The Contractor shall interface the radio system with the ATS system for the initialization of TID in the Radio System.

The RCW shall interface with the ATS System to track the progress of every Train throughout the NSCR. The ATS System shall inform RCW of the occupancy of all tracks and the position of all Signaling points. From this information, the RCW shall determine the path of each Train and 'steps' the description of the Train accordingly and display its location on the railway layout map given on the RCW GUI, with its corresponding TID. This real-time train's location updating from the ATS System shall allow on-screen random selection of the train(s) by the train icon(s) to establish the call without having to select the radio base station.

The call shall be set up through the radio MMI in a common Talk Group or using DMO without the intervention of the MMI to allow the train driver to communicate with other personnel using hand-portable radio.

11) Entering the Depots from Main Line

a) The Train Control and Signaling System shall send a signal to the Radio System for deletion of TID when the train is entering the Depot boundary from the mainline;

b) The train radio shall de-register from mainline mode and register to Depot mode automatically;

c) Visual and audible indications shall be displayed on the radio control head to inform the driver that the registration request is in progress;

d) Different visual and audible indications shall be displayed for successful and unsuccessful registration; and

e) Depot identifier and the RIN of the Train radio ID shall be displayed on the TR-HMI after a successful registration.

12) Numbering System

The numbering system for the shunting team, maintenance team, controller, and others shall be based on the functional description as follows.

a) Every shunting team number shall be based on an association of

i. Service area identifier, and

ii. Shunting team identifier.

b) Every maintenance team number shall be based on an association of

i. Service area identifier;

ii. Type of maintenance team (specialty code); and

iii. Maintenance team identifier.

c) Every controller number shall be based on an association of

i. Controller location; and

ii. Controller identifier.

d) The numbering for other teams shall be treated in the same manner as the maintenance team.

3.5.6 Hand-portable User Radio Calls

3.5.6.1 General

The Contractor shall supply different types of hand-held radios, such as:

- General-purpose radio;
- Operational radio; and
- Shunting radio.

Each of these types of radios has specific features. quantities and features of each type of radio shall be proposed by the Contractor, subject to approval by the Engineer. The handheld radios shall support the following call features. These features shall be

11) Entering the Depots from Main Line

a) The Train Control and Signaling System shall send a signal to the Radio System for deletion of TID when the train is entering the Depot boundary from the mainline;

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ii. Type of maintenance team (specialty code); and

iii. Maintenance team identifier.

c) Every controller number shall be based on an association of

i. Controller location; and

ii. Controller identifier.

d) The numbering for other teams shall be treated in the same manner as the maintenance team.

~~13) Use of alphanumeric numbers~~

~~The Train Identity Number (TID), Radio Identity Number (RIN) shall be alphanumeric. The Train ID will comprise up to 10 alphanumeric characters or as requested by the Operator.~~

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Each of these types of radios has specific features. quantities and features of each type of radio shall be proposed by the Contractor, subject to approval by the Engineer. The handheld radios shall support the following call features. These features shall be

By depressing the call transmit button, a group call to the talk-group assigned to the radio control panel shall be initiated. The radio control panel shall have a speaker with a volume control switch for audio monitoring. The talk-group selected for communication with the radio control panel shall be routed to the speaker.

Hands-free operation shall also be possible with the RCP.

4.8 Radio Base Station Requirements

4.8.1 General

The Radio Base Station shall consist of a dual carrier designed with inherent redundancy.

4.8.2 Radio Base Station Communications System

As a minimum, the Contractor shall supply, install, test, and commissioning the following elements for each radio base station Communications System:

Remote-controlled radio base stations (including base transceivers, Base controllers, alarm system, RF distribution system, equipment cabinets, combiners and filters, low loss feeder, antenna, and mounting system, etc.)

The Contractor shall install Radio Base Station equipment in either the Communication Equipment Rooms (CER) at the stations or anywhere within the stations based on the cover design as required to provide the specified coverage area throughout the NSCR network.

The Contractor shall submit the details of network design and the locations of radio base station sites and Antennas and any leaky coaxial system necessary to provide the specified coverage area throughout the NSCR network indicating full indoor coverage.

Maintenance facilities (testing of base transceivers, base controllers, etc.) shall be incorporated such that the testing of any radio base station equipment may be performed in the CER by local operation of control switches, without interruption to the whole base transceiver station.

Radio Frequency Test Loop Equipment that performs loop testing on a per-channel basis shall be provided. The testing shall be able to be performed during normal system operation without interfering with other channels. The tests shall be based on measurements related to BER (Bit Error Rate), BFI (Bad Frame Indication), transmitted output power, and received RSSI (Radio Signal Strength Indication).

The Contractor shall ensure that the maintenance of the radio base station can be performed while the radio base station is operational without affecting other functions.

It shall be possible to undertake maintenance on all redundant cards and components without having to remove or disconnect other cards and components.

4.8.3 Radio Base Station

The Radio Base Station shall be supplied with the following Engineering facilities:

1) Unblocked access to all channels available at the Radio Base Station for local monitoring of incoming and outgoing transmission within the radio base station radio communications system;
2) Local keying of the transmitter through control software;
3) Fully shielded-removable modules with front-mount controls and diagnostic;
4) Readily expandable air interfaces without degradation of the final output power;

The Contractor shall install Radio Base Station equipment in either the Communication Equipment Rooms (CER) at the stations or anywhere within the stations based on the cover design as required to provide the specified coverage area throughout the NSCR network.

The Contractor shall submit the details of network design and the locations of radio base station~~s~~ sites and Antennas and any leaky coaxial system necessary to provide the specified coverage area throughout the NSCR network indicating full indoor coverage.

Maintenance facilities (testing of base transceivers, base controllers, etc.) shall be incorporated such that the testing of any radio base station equipment may be performed in the CER by local operation of control switches, without interruption to the whole base transceiver station.

~~The Contractor shall provide fall back operation for radio base stations to operate in local site operation and maintenance, in the event of failure within the system.~~

~~In the event of total failure to the base station controller, the subscriber users shall revert to the direct mode operation.~~

Radio Frequency Test Loop Equipment that performs loop testing on a per-channel basis shall be provided. The testing shall be able to be performed during normal system operation without interfering with other channels. The tests shall be based on measurements related to BER (Bit Error Rate), BFI (Bad Frame Indication), transmitted output power, and received RSSI (Radio Signal Strength Indication).

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3) Fully shielded-removable modules with front-mount controls and diagnostic;
4) Readily expandable air interfaces without degradation of the final output power;
5) Software upgrades applied without the need for a site visit; and
6) Radio base stations shall operate in full-duplex mode for all communications.

4.8.4 Radio Base Station Combiner

All transmitter combiners shall be passive. Active splitters if incorporated shall be supervised for failure and reported back to the OCC NMS through the radio base station controller. The Contractor shall propose the type of connectors to be used for interfacing between RF equipment.

All the Combiners supplied shall provide interface ports to allow up to 4 (minimum) frequency channels (transmit and receive) into the LCX and antenna networks.

The Contractor shall ensure that two duplex ports are reserved in the combiner for temporary connection of the transportable units to the antenna network. The duplex

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The Contractor shall ensure that two duplex ports are reserved in the combiner for temporary connection of the transportable units to the antenna network. The duplex ports shall be frequency independent within the frequency band and no tuning shall be required.

4.8.5 Base Station Control Module

The base station shall have fully redundant Base Station Control Modules in a hot-standby mode of operation. The switchover of the base station control module and the power supply shall be transparent to the users and shall automate calling in case of failure of one BSC.

The Base Station Control Module shall be co-located with the base station to perform an interface to the BTS to transmit audio and data signal to central equipment

4.8.6 Local Mode

The base station shall as a minimum operates in local mode in one of the following methods:

1) Manually from radio management system;

2) Automatically upon the detection of the loss of communication link between central equipment and local equipment; and

3) Automatically upon the detection of fault tolerance central equipment fails.

In local mode, the communication shall be restricted to the radios under the RF coverage zone of the base station only.

Manual switching of the base station to normal operation when operating in local mode shall be possible. Switching shall be achieved either from the base station control module front panel or the radio management system.4.8.7 Health Status Reporting

The Base station shall as a minimum have an alarm system which shall report the following health status to the radio management system:

1) RF forward power;

2) Power amplifier failure;

3) Power amplifier temperature;

4) Transceiver failure;

5) Local mode;

6) Control channel failure;

7) Control channel transceiver switchover; and

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The Base Station Control Module shall be co-located with the base station to perform ~~the following~~ an ~~s a minimum:~~i
~~1) I~~nterface to the BTS to transmit audio and data signal to central equipment~~;~~
~~and~~
~~2) Initiate local mode.~~
~~The front panel of the base station control module shall have indicators for the display of base station status.~~

~~4.8.6~~ 4.8.6 Local Mode

The base station shall as a minimum operates in local mode in one of the following methods:

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2) Automatically upon the detection of the loss of communication link between central equipment and local equipment; and
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3) Power amplifier temperature;
4) Transceiver failure;
5) Local mode;
6) Control channel failure;
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8) Power supply unit failure.

4.8.8 Built-in Test Routine

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3) Power amplifier temperature;

4) Transceiver failure;

5) Local mode;

6) Control channel failure;

7) Control channel transceiver switchover; and

8) Power supply unit failure.

4.8.7 Built-in Test Routine

Built-in test routines shall be able to test the base stations and central equipment of the Radio System. These routines shall operate in an off-line mode to allow a complete functional test of the module in a problem.

As a minimum, built-in test routines shall be initiated by the following:

1) Local maintenance commands via a notebook computer connected to the local maintenance port;

2) Remote maintenance commands via the radio management system workstation;

3) Self-initiated as a result of the on-line error detection; and

4) Self-initiated as part of the power-up-initialization process.

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~~In local mode, the communication shall be restricted to the radios under the RF coverage zone of the base station only.~~

~~Manual switching of the base station to normal operation when operating in local mode shall be possible. Switching shall be achieved either from the base station control module front panel or the radio management system.~~

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4.8.~~8~~ 7 Built-in Test Routine

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4.8.4 Radio Base Station Combiner

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As a minimum, built-in test routines shall be initiated by the following:

1) Local maintenance commands via a notebook computer connected to the local maintenance port;

2) Remote maintenance commands via the radio management system workstation;

3) Self-initiated as a result of the on-line error detection; and

4) Self-initiated as part of the power-up-initialization process.

4.9 Train Radio

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2) Remote maintenance commands via the radio management system workstation;
3) Self-initiated as a result of the on-line error detection; and
4) Self-initiated as part of the power-up-initialization process.

4.9 Train Radio

4.9.1 General

The Train or On-board Radio system consists of Radio Module together with an Interface Control panel, antenna, and display. They shall be provided by the Telecommunications Contractor including coaxial cable between antenna and transceivers. If the power of rolling stock is lost, the configuration data for the onboard Radio system shall be retained.

All TR-HMI shall be designed and built to the same specifications and shall be fully interchangeable. All call-related functions shall be possible with the handset ON or OFF the hook.

The display window shall display the following information as a minimum:

1) Incoming call type;
2) Incoming call mode;
3) Calling party identification;
4) Message even when a voice call is in progress;
5) Call proceeding;
6) Call ringing;
7) Call waiting;
8) Radio failure and alarms;
9) Real-time signal strength bar display;
10) TID in mainline mode;
11) Depot identifier and RIN/Train ID in Depot mode;
12) Function menu;
13) The result of radio start-up diagnostic; and
14) The result of the train radio log-on.

These indications shall be specified such that they cannot be confused with any indications related to the safety within the cab.

The following function keys shall, as a minimum, be available on the TR-HMI:

1) Volume control;
2) Acknowledge of an incoming call;
3) Initiate emergency call;
4) Initiate train radio log-on – in Depot or Mainline mode;
5) Initiate OCC call;
6) Initiate Depot shunter call;
7) Initiate group calls in various talk groups;
8) Selection of pre-programmed status messages and transmission;
9) Lamp test;
10) Backlight;
11) 0 to 9 with # and * keys for data entry;
12) 'Enter' key to confirm the input data;
13) Heavy-duty PTT switch; and
14) ON/OFF Control.

5) Initiate OCC call;

6) Initiate Depot shunter call;

7) Initiate group calls in various talk groups;

8) Selection of pre-programmed status messages and transmission;

9) Lamp test;

10) Backlight;

11) ~~1 to 10~~0 to 9 with # and * keys for data entry;

12) 'Enter' key to confirm the input data;

13) Heavy-duty PTT switch; and

14) ON/OFF Control.

The emergency button and ON/OFF Control shall be protected against accidental activation/deactivation.

Switching 'ON' the radio TR-HMI shall cause a self-test of TR-HMI and display the status of the train radio.

Switching 'OFF' the radio TR-HMI intentionally or on power, failure shall be "soft" so that the train radio completes the following house-keeping functions before actually switching off.

1) Controlled termination of a current call;

2) De-register running number;

3) Store required data; and

4) Passenger Emergency Intercom, Train borne public address function and cabin to cabin communication shall continue to be available.

The cab radio shall switch on automatically when the driver's desk is opened, and it shall also be possible to switch on the radio when the desk is not active.

4.9.3 Built-in Test Routine

Built-in test routines shall be capable of testing the train cab radio and the TR-HMI. These routines shall operate in an off-line mode to allow a complete functional test of the module in a problem.

1) The Contractor shall perform automatic self-diagnostic routine test on ~~the~~ all Train-borne Radio Communication Equipment and associated equipment upon every initialization; and

2) The fault and self-diagnostics information shall be processed and sent to NMS to indicate the status of the Train-borne Radio Communication equipment to facilitate prompt fault diagnosis and enable NSCR staff to locate faulty modules for first-line replacement. The information shall include, but not be limited to the following:

   a) ATC Link Failure;

   b) TMS Link Failure; and

   c) TR-HMI failure.

3) The Train-borne Mobile Transceiver shall be provided with a radio test port to enable testing of the Train-borne Radio Communication equipment. The port shall be able to interface to a Notebook Computer. As a minimum, one Notebook Computer shall

### 7.8.3 Auditability

7.8.3.1 The AFC system shall provide fully auditable accounting records and shall be able to store Transaction Records and all other usage data (including, but not limited to, Device status messages), securely and indefinitely.

### 7.8.4 Passenger Demand Forecast

7.8.4.1 MCRP and NSRP-South Commuter

a) The Contractor shall propose the equipment quantity for each station, taking into consideration the passenger demand forecast, station space capacity, minimum equipment quantities as shown in the drawings and the equipment requirements stated in Section 7.9. The AFC system proposed shall be able to process passengers on weekday peak hour at each station smoothly.

b) The passenger demand forecast data for peak 1(one) hour until 2045 are shown in Table 7-6

**Table 7-6 Peak Hour Passenger Demand**

| Station | 2045 | |
|---|---|---|
| | Boarding | Alighting |
| CIA | 490 | 490 |
| Clark | 5,846 | 5,846 |
| Angeles | 1,778 | 1,778 |
| San Fernando | 4,247 | 4,247 |
| Apalit | 1,646 | 1,646 |
| Calumpit | 1,800 | 1,800 |
| Tutuban | 1,133 | 1,133 |
| Blumentritt | 2,911 | 2,911 |
| Espana | 4,134 | 4,134 |
| Santa Mesa | 4,996 | 4,996 |
| Paco | 1,202 | 1,202 |
| Buendia | 5,200 | 5,200 |
| EDSA | 2,006 | 2,006 |
| Nichols | 1,862 | 1,862 |
| FTI | 6,445 | 6,622 |

### 7.8.4 Passenger Demand Forecast

7.8.4.1 MCRP and NSRP-South Commuter

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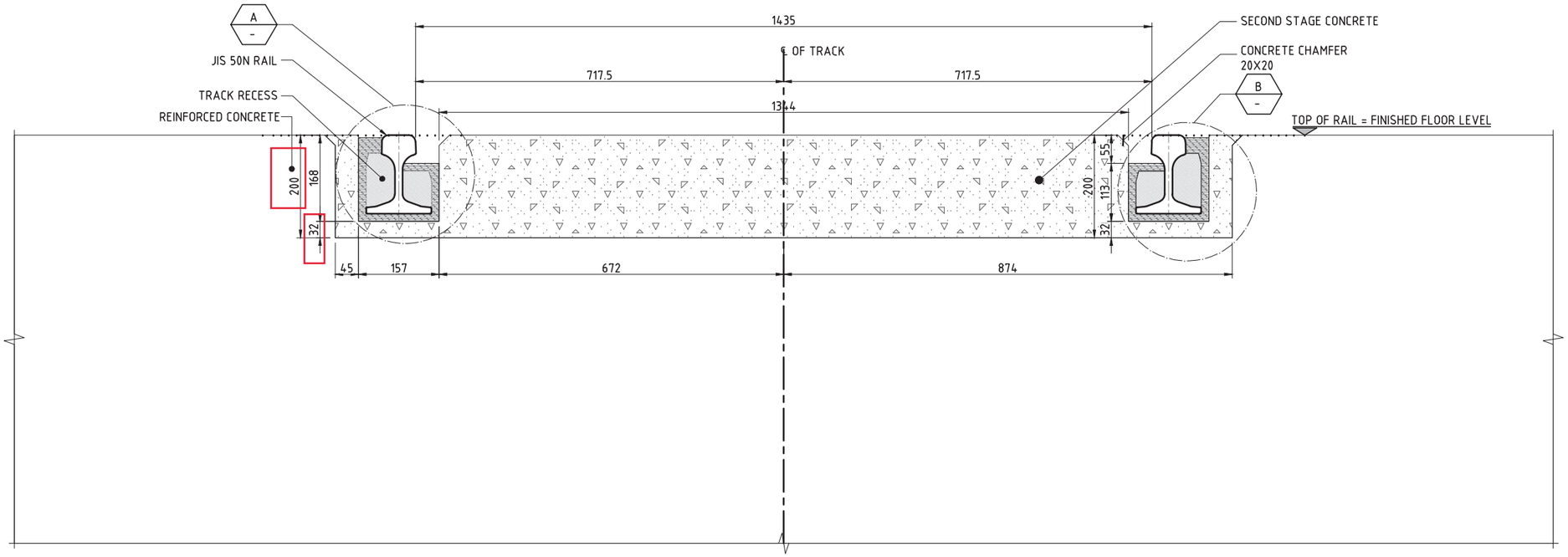
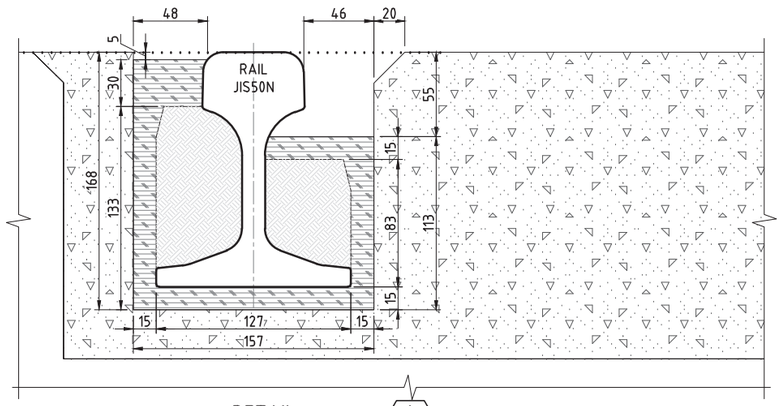
| Angeles | 1,778 | 1,778 |
| San Fernando | 4,247 | 4,247 |
| Apalit | 1,646 | 1,646 |
| Calumpit | 1,800 | 1,800 |
| Tutuban | 1,133 | 1,133 |
| Blumentritt | 2,911 | 2,911 |
| Espana | 4,134 | 4,134 |
| Santa Mesa | 4,996 | 4,996 |
| Paco | 1,202 | 1,202 |
| Buendia | 5,200 | 5,200 |
| EDSA | 2,006 | 2,006 |
| Nichols | 1,862 | 1,862 |
| FTI | 6,445 | 6,622 |
| Bicutan | 7,538 | 7,691 |
| Sucat | 2,992 | 3,048 |
| Alabang | 5,817 | 5,932 |

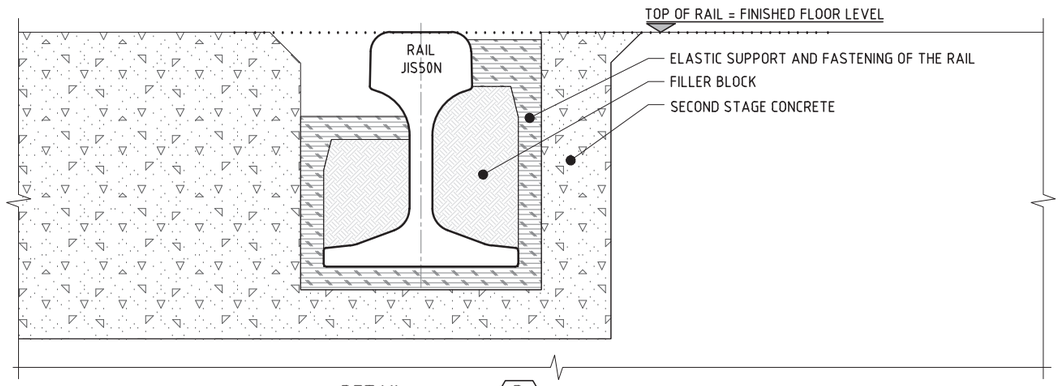



SECTION 1
SCALE 1:5 0150

TYPICAL CROSS SECTION OF EMBEDDED TRACK IN DEPOT




DETAIL A
SCALE 1:2




DETAIL B
SCALE 1:2

NO RAIL CANT IS PROVIDED

SYSTEM FOR EMBEDDED TRACK SHALL BE EDILON )( SEDRA OR EQUALENT.

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE MENTIONED.

SCALE 1:2 0.2 0 .02 .04 .06 .08 0.1

SCALE 1:5 0.05 0 0.10 0.20

| VERSIONS | DATE | DESCRIPTION |
|---|---|---|
| 03 | 15 MAY 2019 | ISSUED FOR REFERENCE |
| | | |
| | | |
| | | |
| | | |

DEPARTMENT OF TRANSPORTATION (DOTr)

PHILIPPINE NATIONAL RAILWAYS

CONSULTANT

JICA DESIGN TEAM (JDT)

ORIENTAL CONSULTANTS GLOBAL CO., LTD.

KATAHIRA & ENGINEERS INTERNATIONAL

PACIFIC CONSULTANTS CO., LTD.

JAPAN INTERNATIONAL CONSULTANTS FOR TRANSPORTATION CO., LTD.

TONICHI ENGINEERING CONSULTANTS INC.

TOKYO METRO CO., LTD

| TITLE | JDT | SMEC |
|---|---|---|
| DESIGNER | S. HASHIMOTO | R. ACOSTA JR. |
| CHECK | S. YOSHIMOTO | V. BALAKRISHNAN |
| TEAM LEADER | K. KUSANAGI | W. FRENCKEN |
| P. MANAGER | Y. MAEDA | R. YUZON JR. |

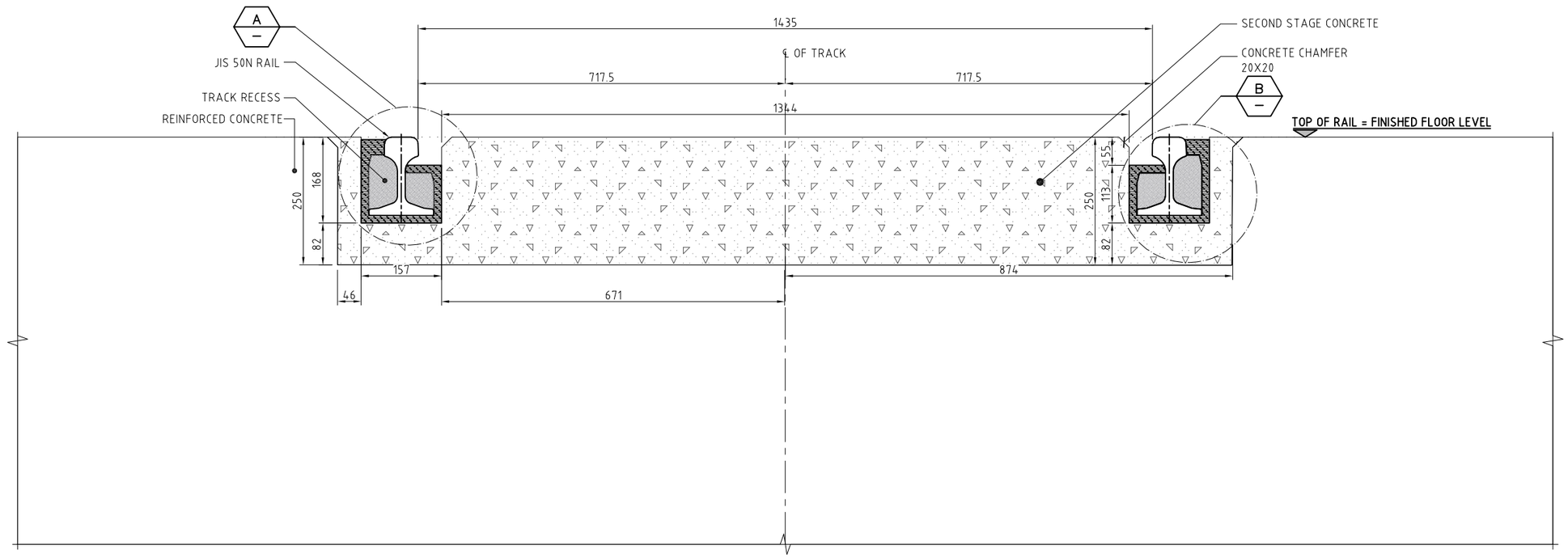
E & M SYSTEMS AND TRACK WORKS
PACKAGE CP NS-01 : BIDDING DOCUMENTS

FOR REFERENCE

TYPICAL CROSS SECTION
OF WORKSHOP TRACK (DEPOT)
EMBEDDED TRACK

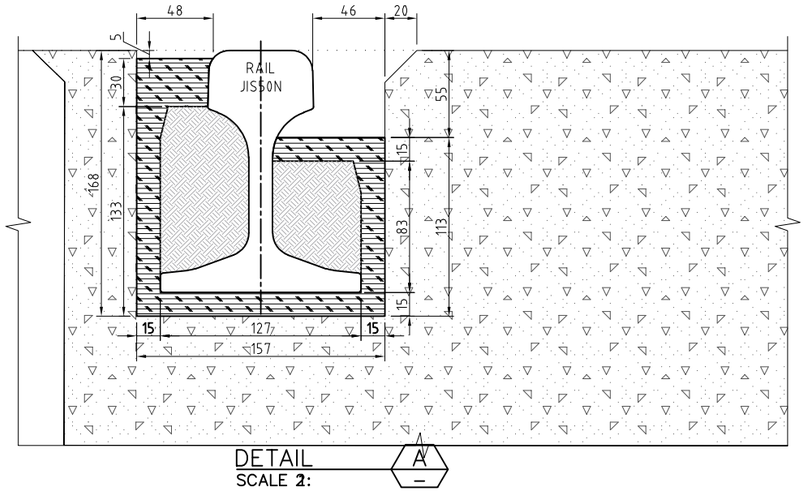
DATE: MAY 2019
SCALE: AS SHOWN IN A1
SHEET No.:
DRG No.: MCRP-DWG-GEN-TK-0117
DRG S.:
REV: 03

GBB No. 32

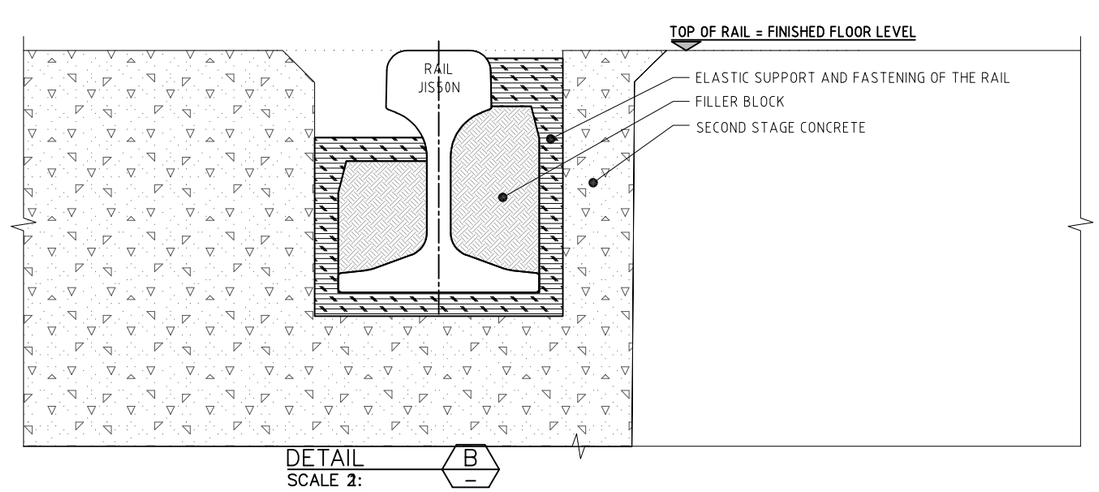



SECTION 1
SCALE 1: 0150

TYPICAL CROSS SECTION OF EMBEDDED TRACK IN DEPOT




DETAIL A
SCALE 2:




DETAIL B
SCALE 2:

NO RAIL CANT IS PROVIDED

SYSTEM FOR EMBEDDED TRACK SHALL BE EDILON )( SEDRA OR EQUALENT.

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE MENTIONED.

SCALE 1: 2 0.2 0 .02 .04 .06 .08 0.1

SCALE 1: 5 0.05 0 0.10 0.20

| VERSIONS | DATE | DESCRIPTION |
|---|---|---|
| 03 | 15 MAY 2019 | ISSUED FOR REFERENCE |
| 04 | 23 SEP 2021 | ISSUED FOR REFERENCE |
| | | |
| | | |
| | | |

DEPARTMENT OF TRANSPORTATION (DOTr)

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| TEAM LEADER | K. KUSANAGI | W. FRENCKEN |
| P. MANAGER | Y. MAEDA | R. YUZON JR. |

E & M SYSTEMS AND TRACK WORKS
PACKAGE CP NS-01 : BIDDING DOCUMENTS

FOR REFERENCE

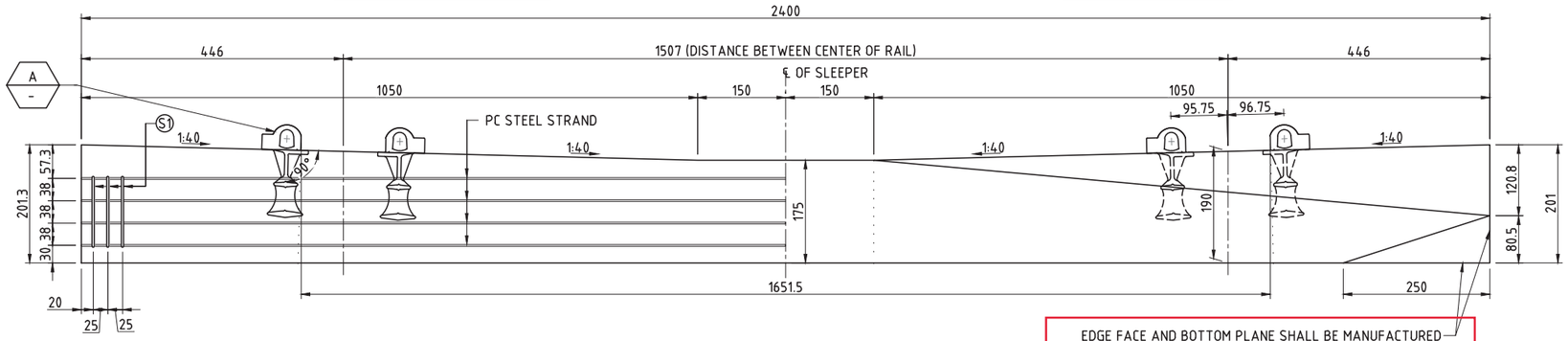
TYPICAL CROSS SECTION OF WORKSHOP TRACK (DEPOT) EMBEDDED TRACK

DATE: MAY 2019
SCALE: AS SHOWN IN A1
SHEET No.:
DRG No.: MCRP–DWG–GEN–TK–0117
DRG S.:
REV: 04

GBB No. 32

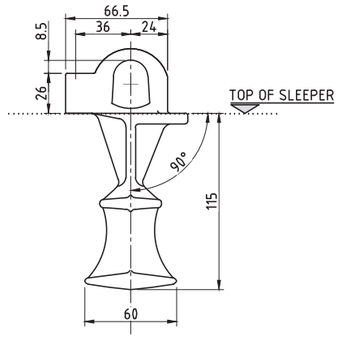
## REINFORCEMENT LAYOUT

## EXTERNAL LAYOUT




EDGE FACE AND BOTTOM PLANE SHALL BE MANUFACTURED WITH GOOD PRECISION FOR THE INSTALLATION OF SEF BOX

SIDE ELEVATION A
SCALE 1: 10



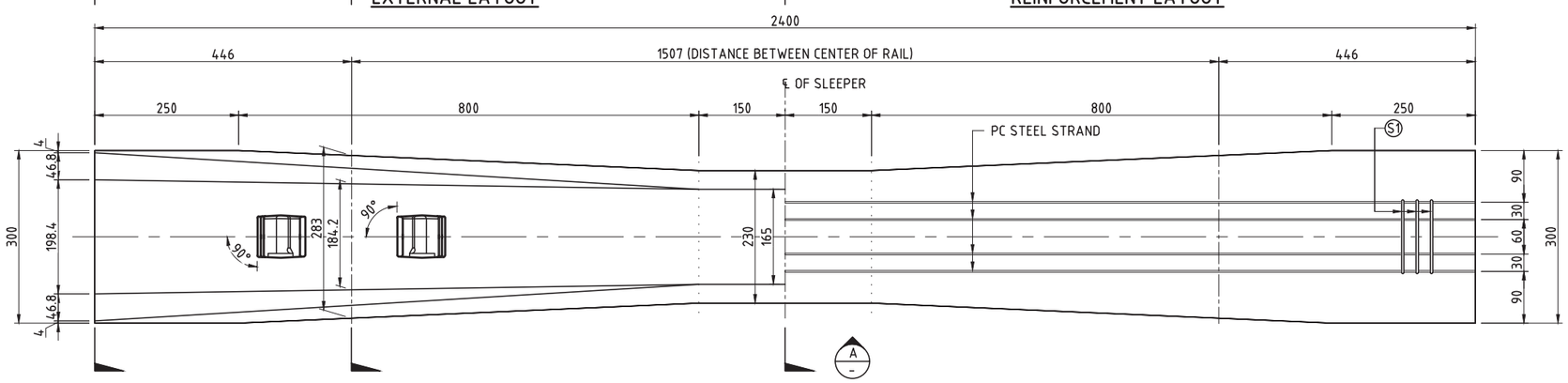

DETAIL A
SCALE 1:5

(STEEL CAST-IN SHOULDER DETAIL)

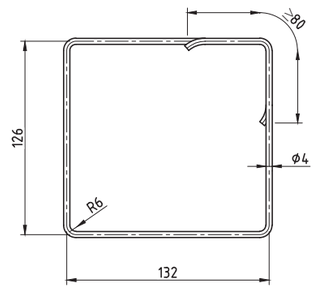
01 — 02 — 03

## EXTERNAL LAYOUT

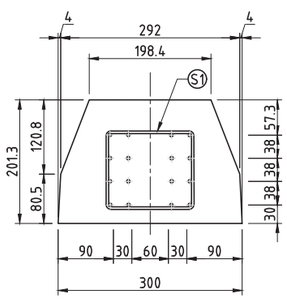
## REINFORCEMENT LAYOUT



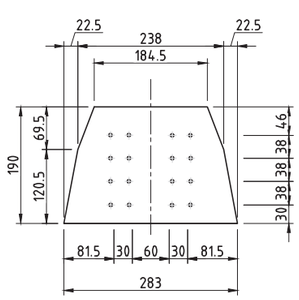

TOP VIEW
SCALE 1: 10



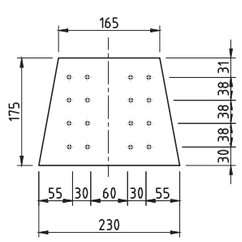

S1 (STIRRUP)
SCALE 1:5




SECTION 01
SCALE 1: 10




SECTION 02
SCALE 1: 10




SECTION 03
SCALE 1: 10

| | | |
|---|---|---|
| COMPRESSIVE STRENGTH OF CONCRETE (COLUMNAR TEST PIECE) | DESIGN STANDARD STRENGTH | > 49.1 N/mm²/ |
| | WHEN INTRODUCING PRESTRESSED CONCRETE | > 39.2 N/mm²/ |
| PC STEEL STRAND | TENSION LOAD | > 38.3 KN |
| | LOAD OF THE 0.2% PERMANENT ELONGATION | > 33.8 KN |
| STEEL TENSILE FORCE | ACCELERATED CURING AT HIGH TEMPERATURE | 31.8 KN/TENDON |
| | WET CURING AT NORMAL TEMPERATURE | 30.3 KN/TENDON |

**NOTE:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED.

SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5

SCALE 1:5 0.05 0 0.10 0.20

| VERSIONS | DATE | DESCRIPTION |
|---|---|---|
| 03 | 15 MAY 2019 | ISSUED FOR REFERENCE |
| | | |
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| | | |

DEPARTMENT OF TRANSPORTATION (DOTr)

PHILIPPINE NATIONAL RAILWAYS

CONSULTANT

JICA DESIGN TEAM (JDT)

ORIENTAL CONSULTANTS GLOBAL CO., LTD.
KATAHIRA & ENGINEERS INTERNATIONAL
PACIFIC CONSULTANTS CO., LTD.
JAPAN INTERNATIONAL CONSULTANTS FOR TRANSPORTATION CO., LTD.
TONICHI ENGINEERING CONSULTANTS INC.
TOKYO METRO CO., LTD

| TITLE | JDT | SMEC |
|---|---|---|
| DESIGNER | S. HASHIMOTO | R. ACOSTA JR. |
| CHECK | S. YOSHIMOTO | V. BALAKRISHNAN |
| TEAM LEADER | K. KUSANAGI | W. FRENCKEN |
| P. MANAGER | Y. MAEDA | R. YUZON JR. |

E & M SYSTEMS AND TRACK WORKS
PACKAGE CP NS-01 : BIDDING DOCUMENTS

FOR REFERENCE

# TYPICAL DETAILS FOR MONO-BLOCK PSC CONCRETE SLEEPER FOR BALLASTED TRACK

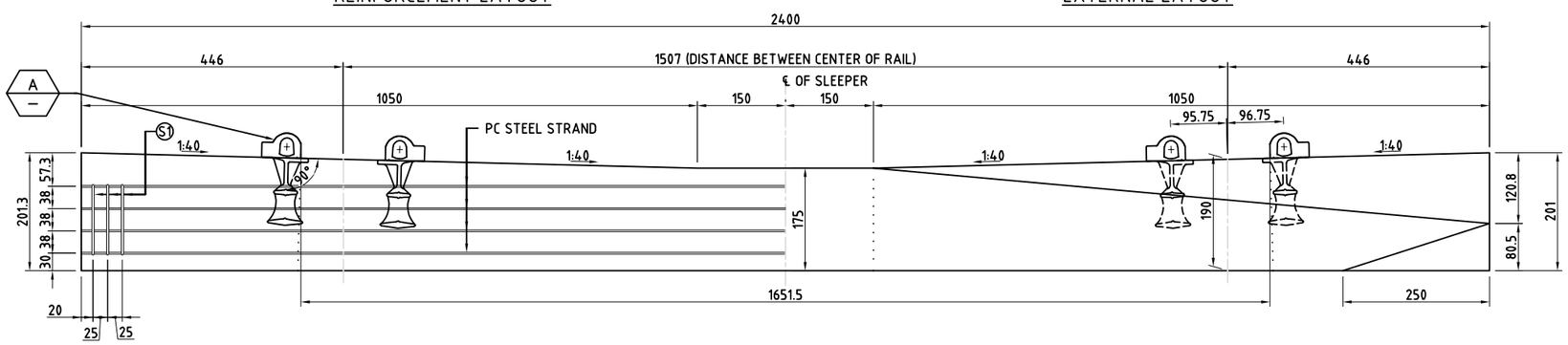
DATE: MAY 2019
SCALE: AS SHOWN IN A1
SHEET No.:
DRG No.: MCRP-DWG-GEN-TK-0206
DRG S.:
REV: 03

WVR–219

GBB No. 32

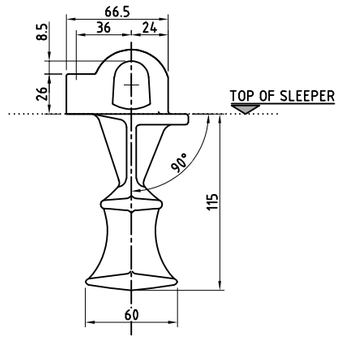
REINFORCEMENT LAYOUT

EXTERNAL LAYOUT




SIDE ELEVATION A

SCALE 10




DETAIL A

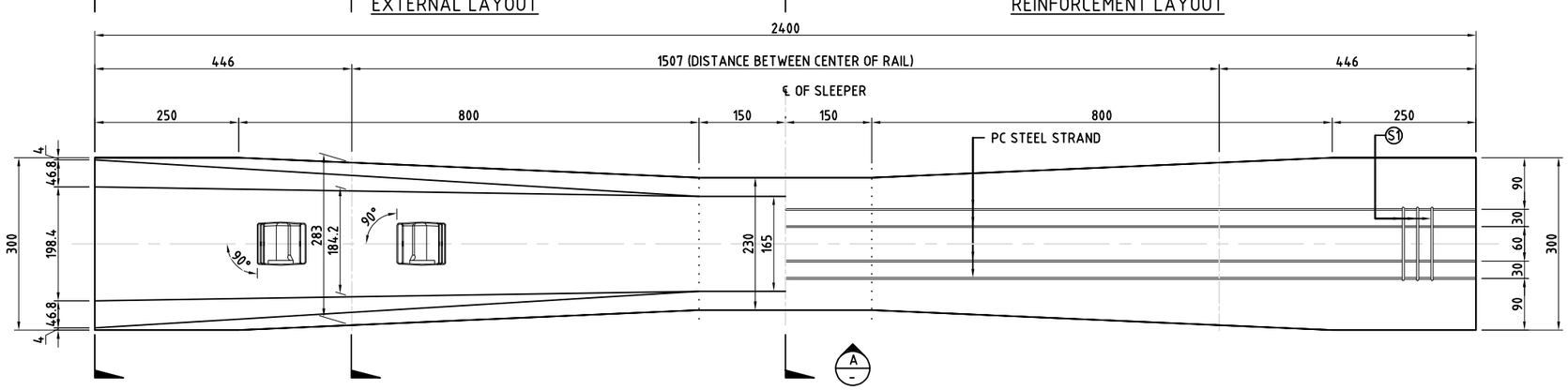
SCALE 5:

(STEEL CAST-IN SHOULDER DETAIL)

01

02 EXTERNAL LAYOUT

03 REINFORCEMENT LAYOUT



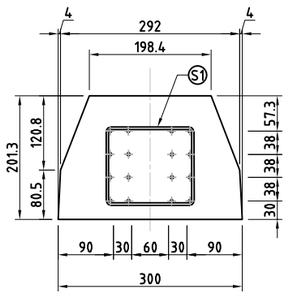

TOP VIEW

SCALE 10



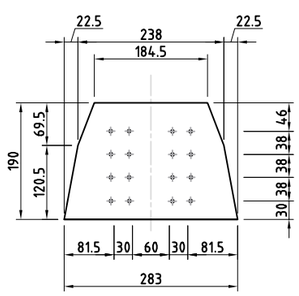

S1 (STIRRUP)

SCALE 1:5



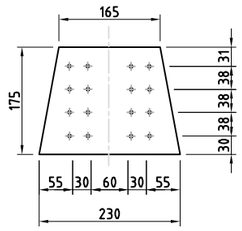

SECTION 01

SCALE 10




SECTION 02

SCALE 10




SECTION 03

SCALE 10

| | | |
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NOTE:

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SCALE 1:10 0.1 0 0.1 0.2 0.3 0.4 0.5

SCALE 1:5 0.05 0 0.10 0.20

| VERSIONS | DATE | DESCRIPTION |
|---|---|---|
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| 04 | 21 SEP 2021 | ISSUED FOR REFERENCE |
| | | |
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| | | |

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E & M SYSTEMS AND TRACK WORKS
PACKAGE CP NS-01 : BIDDING DOCUMENTS

PACKAGE CP N-00 : BIDDING DOCUMENTS

TYPICAL DETAILS FOR MONO–BLOCK PSC CONCRETE SLEEPER FOR BALLASTED TRACK

DATE: MAY 2019

SCALE: AS SHOWN IN A1

SHEET No.

DRG No.: MCRP–DWG–GEN–TK–0206

DRG S.

REV: 04

Last modified by AGUILAR / 02 Dec 2020
Filename: C:\Users\User\Desktop\MY FILES\ORGANIZE CAD FILES\MCRP\TRACKWORKS\MCRP–DWG–GEN–TK–0206 (updated)