

| Metro Manila Subway Project Phase 1 Package CP106: E&M Systems and Track Works | | | | | | | | | | | | | | | | | |
|---|--|---|-----|------|-------------|--------|--|------------------|-----|-----|--|--|--|-----|--|--|--|
| ITEM NO. | REFERENCE CLAUSE/SECTION | ADDENDUM No. 17 | | | | | | | | | | | | | | | |
| <i>Volume I, Part 1 – Bidding Procedures</i> | | | | | | | | | | | | | | | | | |
| 1. | SECTION V, COST CENTRE A, SCHEDULE A2.8 – DESIGN FOR ELECTRICAL & MECHANICAL EQUIPMENT AT PRI | Revise item (f) with the following: | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th rowspan="2">ITEM</th> <th rowspan="2">DESCRIPTION</th> <th colspan="2">AMOUNT</th> </tr> <tr> <th>FOREIGN CURRENCY</th> <th>PHP</th> </tr> </thead> <tbody> <tr> <td>(e)</td> <td>Prepare and deliver all educational materials for PRI and 4 m rail track for Train Part Model</td> <td></td> <td></td> </tr> <tr> <td>(f)</td> <td>Supply of simulator, special tools for the training center</td> <td></td> <td></td> </tr> </tbody> </table> | | ITEM | DESCRIPTION | AMOUNT | | FOREIGN CURRENCY | PHP | (e) | Prepare and deliver all educational materials for PRI and 4 m rail track for Train Part Model | | | (f) | Supply of simulator, special tools for the training center | | |
| ITEM | DESCRIPTION | AMOUNT | | | | | | | | | | | | | | | |
| | | FOREIGN CURRENCY | PHP | | | | | | | | | | | | | | |
| (e) | Prepare and deliver all educational materials for PRI and 4 m rail track for Train Part Model | | | | | | | | | | | | | | | | |
| (f) | Supply of simulator, special tools for the training center | | | | | | | | | | | | | | | | |
| 2. | SECTION V, COST CENTRE A, SCHEDULE A2.10– DESIGN FOR MAINENTANCE MANAGEMNET SYSTEM | Revise title of schedule with the following: “SCHEDULE A2.10– DESIGN FOR MAIN E <u>N</u> TENANCE MANAGEM E <u>N</u> T SYSTEM” | | | | | | | | | | | | | | | |

**Metro Manila Subway Project Phase 1
Package CP106: E&M Systems and Track Works**

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| 3. | SECTION V, COST CENTRE A, SCHEDULE A2.11 – DESIGN FOR FACILITIES SCADA | Revise title of schedule and item A2.11.1 with the following: SCHEDULE A2.11 – DESIGN FOR <u>INTEGRATED CONTROL & SUPERVISORY SYSTEM (ICSS) / FACILITIES SCADA</u> | | | | | | | | | | | | | | | | |
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| | | FOREIGN CURRENCY | PHP | | | | | | | | | | | | | | | |
| A2.11.1 | Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer the following submissions for <u>ICSS/Facilities SCADA and Linear Heat Detection System (LHDS) in tunnel:</u> | | | | | | | | | | | | | | | | | |
| 4. | SECTION V, COST CENTRE A, SCHEDULE A2.12 –BIM REQUIREMENTS (New Requirement) | Add new schedule with the following requirement: <u>COST CENTRE A - PRELIMINARIES AND GENERAL REQUIREMENTS AND DESIGN SCHEDULE A2.12 –BIM REQUIREMENTS</u> | | | | | | | | | | | | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 10%; text-align: center;"><u>ITEM</u></th> <th rowspan="2" style="width: 60%; text-align: center;"><u>DESCRIPTION</u></th> <th colspan="2" style="text-align: center;"><u>AMOUNT</u></th> </tr> <tr> <th style="width: 15%; text-align: center;"><u>FOREIGN CURRENCY</u></th> <th style="width: 15%; text-align: center;"><u>PHP</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><u>A2.12.1</u></td> <td><u>Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer the following submissions for BIM Requirements</u></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;"><u>(a)</u></td> <td><u>Pre-BIM Works (Mobilization, Setting-up, Procurement of BIM system and associated works)</u></td> <td></td> <td></td> </tr> </tbody> </table> | | | <u>ITEM</u> | <u>DESCRIPTION</u> | <u>AMOUNT</u> | | <u>FOREIGN CURRENCY</u> | <u>PHP</u> | <u>A2.12.1</u> | <u>Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer the following submissions for BIM Requirements</u> | | | <u>(a)</u> | <u>Pre-BIM Works (Mobilization, Setting-up, Procurement of BIM system and associated works)</u> | | |
| <u>ITEM</u> | <u>DESCRIPTION</u> | <u>AMOUNT</u> | | | | | | | | | | | | | | | | |
| | | <u>FOREIGN CURRENCY</u> | <u>PHP</u> | | | | | | | | | | | | | | | |
| <u>A2.12.1</u> | <u>Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer the following submissions for BIM Requirements</u> | | | | | | | | | | | | | | | | | |
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| | | (b) | <u>Payment based on sub-systems BIM model completed.</u> <ul style="list-style-type: none"> • <u>Track Works</u> • <u>Signaling</u> • <u>Telecommunication System</u> • <u>Power Supply System</u> • <u>Overhead Catenary System (OCS)</u> • <u>Automatic Fare Collection (AFC) System</u> • <u>Maintenance Vehicle and Depot Equipment</u> • <u>Tunnel Walkway and Guard Rail</u> | | | | | | | | | | | | | | | |
| | | A2.12.2 | <u>Completion of the remaining works.</u> | | | | | | | | | | | | | | | |
| | | <u>Total of Schedule A2.12 carried forward to Summary of Cost Centre A:</u> | | | | | | | | | | | | | | | | |
| 5. | SECTION V, COST CENTRE A, SCHEDULE A3 - SUMMARY OF COST CENTRE A | Revise this schedule by add with the following new items A3.13: | | | | | | | | | | | | | | | | |
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| <u>ITEM</u> | <u>DESCRIPTION</u> | <u>AMOUNT</u> | | | | | | | | | | | | | | | | |
| | | <u>FOREIGN CURRENCY</u> | <u>PHP</u> | | | | | | | | | | | | | | | |
| <u>A3.12</u> | Schedule A2.11 – Design For <u>ICSS</u> /Facilities SCADA. | | | | | | | | | | | | | | | | | |
| <u>A3.13</u> | <u>Schedule A2.12 –BIM Requirements</u> | | | | | | | | | | | | | | | | | |

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| 6. | SECTION V, COST CENTRE B, SCHEDULE B13 –FACILITIES SCADA | Revise this schedule with the following and add new item B13.3: SCHEDULE B13 – <u>INTEGRATED CONTROL & SAFETY SYSTEM (ICSS)/</u> FACILITIES SCADA | | | | | | | | | | | | | | | | | | | | | | | |
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| ITEM | DESCRIPTION | AMOUNT | | | | | | | | | | | | | | | | | | | | | | | |
| | | FOREIGN CURRENCY | PHP | | | | | | | | | | | | | | | | | | | | | | |
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| <u>B13.3</u> | <u>Delivery of Linear Heat Detection System (LHDS) equipment completes with all necessary and associated accessories.</u> | | | | | | | | | | | | | | | | | | | | | | | | |
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| 7. | SECTION V, COST CENTRE B, SCHEDULE B14 - SUMMARY OF COST CENTRE B | Revise item B14.13 with the following: | | | | | | | | | | | | | | | | | | | |
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| | | FOREIGN CURRENCY | PHP | | | | | | | | | | | | | | | | | | |
| B14.13 | Schedule B13 – ICSS /Facilities SCADA | | | | | | | | | | | | | | | | | | | | |
| Total of Cost Centre B carried forward to Summary of Cost Centres: | | | | | | | | | | | | | | | | | | | | | |
| 8. | SECTION V, COST CENTRE C, SCHEDULE C1 – INSTALLATION & TESTING OF TRACK WORK Sheet 1 of 3 | Revise item C1.2 (b) with the following: | | | | | | | | | | | | | | | | | | | |
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| ITEM | DESCRIPTION | AMOUNT | | | | | | | | | | | | | | | | | | | |
| | | FOREIGN CURRENCY | PHP | | | | | | | | | | | | | | | | | | |
| C1.2 | Completion of installation and site testing of the Trackwork, platform edge and level clearance of the following stations: | | | | | | | | | | | | | | | | | | | | |
| (a) | Depot | | | | | | | | | | | | | | | | | | | | |
| (b) | East Velenzuela <u>Valenzuela</u> | | | | | | | | | | | | | | | | | | | | |

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| 9. | SECTION V, COST CENTRE C, SCHEDULE C12 – INSTALLATION AND TESTING OF FACILITIES SCADA | <p>Revise schedule with the following:</p> <p>SCHEDULE C12 –INSTALLATION AND TESTING OF <u>INTEGRATED CONTROL & SUPERVISORY SYSTEM (ICSS) / FACILITIES SCADA</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;">ITEM</th> <th rowspan="2" style="text-align: center;">DESCRIPTION</th> <th colspan="2" style="text-align: center;">AMOUNT</th> </tr> <tr> <th style="text-align: center;">FOREIGN CURRENCY</th> <th style="text-align: center;">PHP</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">C12.1</td> <td>Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer for Inspection, Testing and Commissioning Management Plan.</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C12.2</td> <td>Completion of installation, site testing and integrated testing for the <u>ICSS</u>/Facilities SCADA</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;"><u>C12.3</u></td> <td><u>Completion of installation, site testing and integrated testing for the Linear Heat Detection System (LHDS) in tunnel</u></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C12.3 C12.4</td> <td>Completion of System Acceptance Test.</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C12.4 C12.5</td> <td>Completion of the remaining works.</td> <td></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">Total of Schedule C12 carried forward to Summary of Cost Centre C:</td> <td></td> <td></td> </tr> </tbody> </table> | | ITEM | DESCRIPTION | AMOUNT | | FOREIGN CURRENCY | PHP | C12.1 | Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer for Inspection, Testing and Commissioning Management Plan. | | | C12.2 | Completion of installation, site testing and integrated testing for the <u>ICSS</u> /Facilities SCADA | | | <u>C12.3</u> | <u>Completion of installation, site testing and integrated testing for the Linear Heat Detection System (LHDS) in tunnel</u> | | | C12.3 C12.4 | Completion of System Acceptance Test. | | | C12.4 C12.5 | Completion of the remaining works. | | | Total of Schedule C12 carried forward to Summary of Cost Centre C: | | | |
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| | | FOREIGN CURRENCY | PHP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| C12.2 | Completion of installation, site testing and integrated testing for the <u>ICSS</u> /Facilities SCADA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>C12.3</u> | <u>Completion of installation, site testing and integrated testing for the Linear Heat Detection System (LHDS) in tunnel</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| C12.4 C12.5 | Completion of the remaining works. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10. | SECTION V, COST CENTRE C, SCHEDULE C14 - SUMMARY OF COST CENTRE C | <p>Revise this schedule with the following:</p> <p>SCHEDULE C13 <u>C14</u> - SUMMARY OF COST CENTRE C</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 10%;">ITEM</th> <th rowspan="2" style="width: 60%;">DESCRIPTION</th> <th colspan="2" style="text-align: center;">AMOUNT</th> </tr> <tr> <th style="width: 20%;">FOREIGN CURRENCY</th> <th style="width: 10%;">PHP</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">C13.1 <u>C14.1</u></td> <td>Schedule C1 - Installation & Testing Of Track Work</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.2 <u>C14.2</u></td> <td>Schedule C2 – Installation & Testing Of Signaling System</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.3 <u>C14.3</u></td> <td>Schedule C3 – Installation & Testing Of Communications System</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.4 <u>C14.4</u></td> <td>Schedule C4 – Installation & Testing Of Power Supply System at Substations</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.5 <u>C14.5</u></td> <td>Schedule C5 – Installation & Testing Of Power Distribution System</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.6 <u>C14.6</u></td> <td>Schedule C6 – Installation & Testing Of Overhead Contact System</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.7 <u>C14.7</u></td> <td>Schedule C7 – Installation & Testing Of Automatic Fare Collection System</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C13.8 <u>C14.8</u></td> <td>Schedule C8 – Installation & Testing Of Platform Screen Doors System</td> <td></td> <td></td> </tr> </tbody> </table> | | | ITEM | DESCRIPTION | AMOUNT | | FOREIGN CURRENCY | PHP | C13.1 <u>C14.1</u> | Schedule C1 - Installation & Testing Of Track Work | | | C13.2 <u>C14.2</u> | Schedule C2 – Installation & Testing Of Signaling System | | | C13.3 <u>C14.3</u> | Schedule C3 – Installation & Testing Of Communications System | | | C13.4 <u>C14.4</u> | Schedule C4 – Installation & Testing Of Power Supply System at Substations | | | C13.5 <u>C14.5</u> | Schedule C5 – Installation & Testing Of Power Distribution System | | | C13.6 <u>C14.6</u> | Schedule C6 – Installation & Testing Of Overhead Contact System | | | C13.7 <u>C14.7</u> | Schedule C7 – Installation & Testing Of Automatic Fare Collection System | | | C13.8 <u>C14.8</u> | Schedule C8 – Installation & Testing Of Platform Screen Doors System | | |
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| C13.1 <u>C14.1</u> | Schedule C1 - Installation & Testing Of Track Work | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.2 <u>C14.2</u> | Schedule C2 – Installation & Testing Of Signaling System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.3 <u>C14.3</u> | Schedule C3 – Installation & Testing Of Communications System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.4 <u>C14.4</u> | Schedule C4 – Installation & Testing Of Power Supply System at Substations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.5 <u>C14.5</u> | Schedule C5 – Installation & Testing Of Power Distribution System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.6 <u>C14.6</u> | Schedule C6 – Installation & Testing Of Overhead Contact System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.7 <u>C14.7</u> | Schedule C7 – Installation & Testing Of Automatic Fare Collection System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C13.8 <u>C14.8</u> | Schedule C8 – Installation & Testing Of Platform Screen Doors System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | | C13.9 C14.9 | Schedule C9 – Installation & Testing Of Electrical & Mechanical Equipment at PRI | |
| | | C13.10 C14.10 | Schedule C10 – Installation & Testing Of Electrical & Mechanical Equipment at Training Centre | |
| | | C13.11 C14.11 | Schedule C11 – Installation & Testing Of Maintenance Management System | |
| | | C13.12 C14.12 | Schedule C12 – Installation & Testing Of <u>ICSS/Facilities SCADA and Linear Heat Detection System (LHDS) in tunnel</u> | |
| | | C13.13 C14.13 | Schedule <u>C13</u> – Integrated Testing And Commissioning | |
| | | Total of Cost Centre C carried forward to Summary of Cost Centres: | | |
| 11. | SECTION V, COST CENTRE D, SCHEDULE D3 – MANUFACTURE & DELIVERY OF DEPOT EQUIPMENT | Revise this schedule with the following: | | |
| | | ITEM | DESCRIPTION | AMOUNT |
| | | | | FOREIGN CURRENCY PHP |

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| | | D3.1 | Obtain Notice of No Objection or Notice of No Objection With Comment(s) from the Engineer for Factory Acceptance Tests for Depot Equipment as stipulated under Volume II, Part 2, Section VI, c) Employer Requirement Technical (ERT), item 8. Contractor shall list down all items listed above and provide unit price to each equipment. | | | |
| | | D3.2 | Delivery <u>and Installation</u> of the Depot Equipment to the Site: | | | |
| | | Total of Schedule D3 carried forward to Summary of Cost Centre D: | | | | |

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|--|---|--|------|-------------|--------------|-----|------------|------------|-----|---------------------------|------------|-----|------------------|------------|-----|------------------------|--|---|-------------------------|-----------|---|--|------------|-----|---|---------------|------------|--|-------------------|--|--|---|
| 12. | SECTION V, COST CENTRE E, SCHEDULE E4 – PROVISIONAL SUMS FOR DISPUTE BOARD’S COSTS, PUBLIC RELATIONS RELATED EVENTS AT SITE, PROVISION OF ASSISTANCE FOR RIGHT OF WAY ACCESS AND MONTHLY TRAINING OF EMPLOYER’S PERSONNEL | <p>Revise this schedule with the following:</p> <p><u>(f) Project Management Information System (PMIS)/Common Data Environment.</u> <u>This Provisional Sum is to include associated licenses cost which is part of the Digital Engineering.</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%; text-align: center;">Item</th> <th style="width: 60%; text-align: center;">Description</th> <th style="width: 30%; text-align: center;">Amount (PHP)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">(a)</td> <td>DB’s Costs</td> <td style="text-align: right;">42,000,000</td> </tr> <tr> <td style="text-align: center;">(b)</td> <td>PR related Events at Site</td> <td style="text-align: right;">15,000,000</td> </tr> <tr> <td style="text-align: center;">(c)</td> <td>Monthly Training</td> <td style="text-align: right;">10,000,000</td> </tr> <tr> <td style="text-align: center;">(d)</td> <td>Temporary Power</td> <td></td> </tr> <tr> <td style="text-align: center;">-</td> <td>For PRI (Genset Rental)</td> <td style="text-align: right;">5,000,000</td> </tr> <tr> <td style="text-align: center;">-</td> <td>For Station & Depot (Meralco’s temporary supply)</td> <td style="text-align: right;">60,000,000</td> </tr> <tr> <td style="text-align: center;">(e)</td> <td>Works related to FTI and Bicutan Stations</td> <td style="text-align: right;">5,811,000,000</td> </tr> <tr> <td style="text-align: center;"><u>(f)</u></td> <td><u>Project Management Information System (PMIS) /Common Data Environment</u></td> <td style="text-align: right;"><u>21,000,000</u></td> </tr> <tr> <td colspan="2">Total of Schedule E4 to be carried forward to Summary of Cost Centre E:</td> <td style="text-align: right;">5,943,000,000 <u>5,964,000,000</u></td> </tr> </tbody> </table> | Item | Description | Amount (PHP) | (a) | DB’s Costs | 42,000,000 | (b) | PR related Events at Site | 15,000,000 | (c) | Monthly Training | 10,000,000 | (d) | Temporary Power | | - | For PRI (Genset Rental) | 5,000,000 | - | For Station & Depot (Meralco’s temporary supply) | 60,000,000 | (e) | Works related to FTI and Bicutan Stations | 5,811,000,000 | <u>(f)</u> | <u>Project Management Information System (PMIS) /Common Data Environment</u> | <u>21,000,000</u> | Total of Schedule E4 to be carried forward to Summary of Cost Centre E: | | 5,943,000,000 <u>5,964,000,000</u> |
| Item | Description | Amount (PHP) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) | DB’s Costs | 42,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (b) | PR related Events at Site | 15,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (c) | Monthly Training | 10,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (d) | Temporary Power | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | For PRI (Genset Rental) | 5,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | For Station & Depot (Meralco’s temporary supply) | 60,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (e) | Works related to FTI and Bicutan Stations | 5,811,000,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>(f)</u> | <u>Project Management Information System (PMIS) /Common Data Environment</u> | <u>21,000,000</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total of Schedule E4 to be carried forward to Summary of Cost Centre E: | | 5,943,000,000 <u>5,964,000,000</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| <i>Volume II, Part 2 – Employer’s Requirements (ER) b) General Requirements (ERG)</i> | | |
| 13. | 5.21 BUILDING INFORMATION MODELLING (BIM) AND PROJECT MANAGEMENT INFORMATION SYSTEM, (New Section) | <p>Add new section with the following:</p> <p><u>5.21 BUILDING INFORMATION MODELLING (BIM) AND PROJECT MANAGEMENT INFORMATION SYSTEM</u></p> <p><u>The Contractor shall deliver the minimum set of information required following the fundamental standards for the creation, management and practice as specified in Appendix 24, Digital Engineering Employer’s Information Requirement (EIR).</u></p> |
| 14. | 5.22 INTEGRATED CONTROL AND SUPERVISORY SYSTEM (ICSS)/FSCADA (New Section) | <p>Add new section with the following:</p> <p><u>5.22 INTEGRATED CONTROL AND SUPERVISORY SYSTEM (ICSS)/FSCADA</u></p> <p><u>5.22.1 GENERAL</u></p> <p><u>The Integrated Control and Supervisory System (ICSS)/ with Facility SCADA (ICSS/FSCADA) system provided by CP 106 for centralised remote control and monitoring of MMSP line from the OCC The Building Management System (BMS) located at Station provided by the Civil Contractor at each Station will include Tunnel Ventilation System (TVS) control and monitoring Facility SCADA (FSCADA). Depot Facility SCADA will be included in the Depot BMS. supplied by the Civil Contractors.</u></p> <p><u>The ICSS/FSCADA shall have the provision to monitor statuses of other system/equipment at different levels that are provided in this MMSP such as Signalling, Telecommunication, Automatic Fare Collection</u></p> |

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| ITEM NO. | REFERENCE CLAUSE/SECTION | ADDENDUM No. 17 |
| | | <p><u>(AFC), Platform Screen Door (PSD), Depot Equipment and Rolling Stock. The interfacing or integration with other systems for the O&M Concessionaire uses during detailed design.</u></p> <p><u>The ICSSS/FSCADA will not interface or integrate with the Power Supply Distribution System, which will be controlled and monitored separately by the Power SCADA system.</u></p> <p><u>The Contractor shall design, install, integrate, testing and commissioning the ICSS/FSCADA system for operation and maintenance of all the Station BMS. The ICSS/FSCADA system shall have the provision to control & monitor MMSP line station BMS from the Operation Control Center (OCC) and provision for the Station Control Room to take control at the BMS terminal located in Station.</u></p> <p><u>The operator in OCC will be able to gather information from the station FSCADA and station equipment health status through the BMS.</u></p> <p><u>5.22.2 INTERFACE WITH BUILDING MANAGEMENT SYSTEM (BMS)</u></p> <p><u>The Civil Contractors shall provide building Management System (BMS) for MMSP Line. BMS is located at the Station & Depot (Civil & MEP), or M&E information including Fire Alarm System, Tunnel Ventilation System (TVS) etc. interfacing with the ICSS/FSCADA system for the M&E Building Services systems/equipment in the stations and tunnels can be monitored and remote-controlled in the OCC through the ICSS/FSCADA Graphical User Interface (GUI) workstations.</u></p> |

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| ITEM NO. | REFERENCE CLAUSE/SECTION | ADDENDUM No. 17 |
| | | <u>The Contractor shall coordinate with Civil Contractor to develop Graphical User Interface (GUI) software of each station BMS, i.e. station layout, I/O signals, alarm monitoring etc. including monitoring & remote control of Tunnel Ventilation System (TVS).</u> |
| 15. | 12.3.1 Backup Operational Control Center (BOCC) | <p>Remove the following requirement:</p> <p>12.3.1 Backup Operational Control Center (BOCC)</p> <p>The Contractor shall make provision for a Backup Operational Control Centre (BOCC) in the event of total Depot OCC shutdown or total system failure. A Failure Mode Criticality Analysis (FMECA) of OCC system architecture shall be carried out by the Contractor for the design of BOCC.</p> <p>The BOCC shall encompass all aspects of the system to control the entire railway and Depot to assist the operator on the operational decisions for normal and degraded mode of operations. The design solution for the BOCC shall be accompanied with HAZOP log comprising of potential hazard, risk and mitigation. The BOCC shall be operational 24/7 even if the actual revenue service hours are less.</p> <p><i>All the requirements of the Backup Operational Control Center (BOCC) will be removed from the contract of the CP106.</i></p> |
| 16. | 17.10 MMSP TEST TRACK FOR PRI, 17.10.1 GENERAL | <p>Revise Section 17.10.1 with the following new requirement:</p> <p>The major equipment prepared by the CP106 contractor for the training center is as shown in the table below. For details of each equipment, check each chapter of this technical specification. These devices shall be prepared by The Contractor without items which other contractor is assigned. In this chapter, we will focus on the training track in</p> |

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| | | <p>particular.</p> <p><u>The Contractor shall supply, deliver and install four (4) metre rail track including sleepers, rail, rail chair & fixing, etc. on a rail bed inside the PRI building for the Train Part Model provided by CP107. The Contractor shall coordinate with CP107 and other relevant civil parties for this interface works.</u></p> |
| 17. | <p>23 PUBLIC EVENT SHOW AT EAST VALENZUELA STATION (New Section)</p> | <p>Add new section with the following requirement;</p> <p><u>23 PUBLIC EVENT SHOW AT EAST VALENZUELA STATION</u></p> <p><u>23.1 GENERAL</u></p> <p><u>The President of the Philippines requested for the project to hold a public event in May 2022. To assist with this request, the Contractor shall propose to install several systems or pieces of equipment at East Valenzuela Station and at PRI for the public event show on March 2022.</u></p> <p><u>The programme/schedule of activities of MMSP to include the lead time of all the necessary material supplied, install and testing for the public event.</u></p> <p><u>The Contractor shall propose either replica or actual equipment used for the project for the event.</u></p> <p><u>The following are the equipment or system that shall be provided for the event, but not limited to:</u></p> <p style="margin-left: 40px;">(1) <u>Track Works such rail track length in meters;</u></p> <p style="margin-left: 40px;">(2) <u>Signaling System;</u></p> |

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| | | <p>(3) <u>Telecommunications System such as CCTV, PI Display etc.;</u></p> <p>(4) <u>Power Supply System;</u></p> <p>(5) <u>Overhead Catenary System;</u></p> <p>(6) <u>Automatic Fare Collection (AFC) such TVM, Automatic Gate etc.;</u></p> <p>(7) <u>Platform Screen Door (PSD);</u></p> <p>(8) <u>Others.</u></p> |
| 18. | <p>APPENDIX 24, BUILDING INFORMATION MODELLING (BIM) AND PROJECT MANAGEMENT INFORMATION SYSTEM (New Appendix)</p> | <p>Please refer Annex C of this GBB for new requirement, APPENDIX 24 – BUILDING INFORMATION MODELLING (BIM) AND PROJECT MANAGEMENT INFORMATION SYSTEM</p> |
| <p><i>Volume II, Part 2 – Volume II, Part 2 –Employer’s Requirements (ER)</i> <i>c) Technical Requirements (ERT)</i></p> | | |

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|---|--|--|----------------------|--|------|--------------|--|---|--|--|--|----------|----------------------|---|--|-----------------------------|-------------------|---|----------------------------------|------------------------|---|------------------|---|--------------------------------------|----------------------------------|--------------|-------------------------------------|--|---------------------------------|------------------------|--|---|--|--|----------------------------------|
| 19. | ERT, 2) SIGNALING SYSTEM, TABLE 2.5.1 | <p>Revise TABLE 2.5.1 with the following:</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; width: 80%;"> <thead> <tr style="background-color: #2c3e50; color: white;"> <th colspan="2" style="text-align: center;">Train Operation Mode</th> <th style="text-align: center;">Note</th> </tr> </thead> <tbody> <tr style="background-color: #95a5a6;"> <td colspan="2" style="text-align: center;">ATO/ATP mode</td> <td>a) Normal Operation on Mainline and in Depot</td> </tr> <tr style="background-color: #95a5a6;"> <td colspan="2"></td> <td>b) Shunting on Mainline and in Depot with ATO</td> </tr> <tr> <td rowspan="4" style="text-align: center; vertical-align: middle;">ATP Mode</td> <td style="text-align: center; vertical-align: middle;">Normal Mainline mode</td> <td>a) Manual Operation with ATP. Maximum speed shall be 120km/h for Overground and 80km/h for tunnel section</td> </tr> <tr> <td></td> <td>b) Operation when ATO fails</td> </tr> <tr style="background-color: #95a5a6;"> <td rowspan="3" style="text-align: center; vertical-align: middle;">Normal Depot mode</td> <td>a) Manual Operation with ATP. Maximum speed shall be 15km/h</td> </tr> <tr style="background-color: #95a5a6;"> <td>b) With ORP (Overrun Protection)</td> </tr> <tr style="background-color: #95a5a6;"> <td>c) With Onboard Signal</td> </tr> <tr> <td rowspan="4" style="text-align: center; vertical-align: middle;">Restriction mode, ATP Cut-Off mode (Rolling Stock Mode)</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">Restriction mode</td> <td>a) Operation when Ground ATP system fails</td> </tr> <tr> <td>b) Manual Operation with Onboard ATP</td> </tr> <tr> <td>c) Maximum speed shall be 15km/h</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Cut-Off mode</td> <td>a) Operation when Onboard ATP fails</td> </tr> <tr> <td></td> <td>b) Manual Operation without ATP</td> </tr> <tr style="background-color: #95a5a6;"> <td colspan="2" style="text-align: center;">Wayside Signaling Mode</td> <td>a) Operation with wayside signaling in the Depot area</td> </tr> <tr style="background-color: #95a5a6;"> <td colspan="2"></td> <td>b) Maximum speed shall be 15km/h</td> </tr> </tbody> </table> | Train Operation Mode | | Note | ATO/ATP mode | | a) Normal Operation on Mainline and in Depot | | | b) Shunting on Mainline and in Depot with ATO | ATP Mode | Normal Mainline mode | a) Manual Operation with ATP. Maximum speed shall be 120km/h for Overground and 80km/h for tunnel section | | b) Operation when ATO fails | Normal Depot mode | a) Manual Operation with ATP. Maximum speed shall be 15km/h | b) With ORP (Overrun Protection) | c) With Onboard Signal | Restriction mode, ATP Cut-Off mode (Rolling Stock Mode) | Restriction mode | a) Operation when Ground ATP system fails | b) Manual Operation with Onboard ATP | c) Maximum speed shall be 15km/h | Cut-Off mode | a) Operation when Onboard ATP fails | | b) Manual Operation without ATP | Wayside Signaling Mode | | a) Operation with wayside signaling in the Depot area | | | b) Maximum speed shall be 15km/h |
| Train Operation Mode | | Note | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ATO/ATP mode | | a) Normal Operation on Mainline and in Depot | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | b) Shunting on Mainline and in Depot with ATO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ATP Mode | Normal Mainline mode | a) Manual Operation with ATP. Maximum speed shall be 120km/h for Overground and 80km/h for tunnel section | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | b) Operation when ATO fails | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Normal Depot mode | a) Manual Operation with ATP. Maximum speed shall be 15km/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | b) With ORP (Overrun Protection) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c) With Onboard Signal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Restriction mode, ATP Cut-Off mode (Rolling Stock Mode) | Restriction mode | a) Operation when Ground ATP system fails | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | b) Manual Operation with Onboard ATP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | c) Maximum speed shall be 15km/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Cut-Off mode | a) Operation when Onboard ATP fails | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | b) Manual Operation without ATP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wayside Signaling Mode | | a) Operation with wayside signaling in the Depot area | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | b) Maximum speed shall be 15km/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 20. | ERT, 2) SIGNALING SYSTEM, SECTION 2.5.9 | <p>Revise this section with the following:</p> <p>2.5.9 Signaling system in Depot</p> <ol style="list-style-type: none"> 1) Depot shall comprise of stabling yard, maintenance yard, main workshop, car washing plant, wheel re-profiling shop and light repairs shop. 2) Routine train operation in the Depot from Stabling Yard shall be carried out in ATO Wayside Signalling mode and will be managed by the OCC. 3) All tracks within the Depot shall be bi-directionally signalled. ATO Wayside Signalling mode of operation shall be for straight moves within the Stabling Yard and without shunting. |
| 21. | ERT, 3) TEL, SECTION 3.7.1 MSN | <p>Revise item (4) a) with the following:</p> <p>(4) Others</p> <p style="padding-left: 40px;">a) Depot's network</p> <p style="padding-left: 80px;">There are many buildings dotted around the Depot. For smooth operation of Depot, it is necessary to provide Telecommunication service to these facilities. For this reason, the buildings shall be connected by optical fiber cable to constitute a LAN / WAN.</p> <p style="padding-left: 80px;">The duct and trough that houses the optical fiber cable shall be laid by the Civil Works Contractor.</p> <p style="padding-left: 80px;">Refer to the LAN / WAN section of "Error! Reference source not found. 3.22 Major material installation for the buildings constituting the LAN / WAN of Depot.</p> <p style="padding-left: 80px;">The systems to be accommodated in the LAN / WAN are as follows:</p> <ul style="list-style-type: none"> ● Telephone system (Phone); |

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| | | <ul style="list-style-type: none"> ● PA system; ● CCTV system; ● Millimeter Wave Communication system; ● Clock system (slave clock); ● Telecommunication equipment monitoring system (TM); ● Building Management System (BMS); ● The BMS equipment shall be installed by the Civils Contractor. ● Maintenance Management System (MMS); and ● The MMS equipment shall be installed by the Civils Contractor. ● Other if any. |
| 22. | ERT, 3) TEL, SECTION 3.7.1 MSN | <p>Revise 3rd bullet in item (6) a) with the following:</p> <p>(6) Interface with other systems</p> <p>a) Network construction of each system</p> <p>The MSN system provides a network of each system by interfacing with other systems. The POI shall be the port of the MSN system.</p> <ul style="list-style-type: none"> ● Telephone system and Wireless LAN system; ● Radio system; ● CCVV <u>CCTV</u> system; |

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| 23. | <p>ERT, 3) TEL,</p> <p>SECTION 3.7.12</p> <p>Telecommunication equipment monitoring system</p> | <p>Revise items (3) and (5) with the following:</p> <p>(3) System function</p> <p>The Telecommunication equipment monitoring system shall display the alarm of the Telecommunication system on the console installed in each Station.</p> <p>The console installed in the OCC shall display alarms of communication facilities installed at all Stations. Also, the console installed in the Depot shall display alarms of communication facilities installed in Depot.</p> <p>OCC operators shall be able to monitor the ALM of Telecommunication system of Mainline and Depot.</p> <p>PSD systems do not have the ability to transmit operating conditions to the OCC. For this reason, it shall be housed in the Telecommunication equipment monitoring system.</p> <p>(5) Interface with other systems</p> <p>(a) System monitored by Telecommunication equipment monitoring system</p> <p>Telecommunication equipment monitoring system shall monitor the operating status of the following system:</p> <ul style="list-style-type: none"> a) MSN system; b) Telephone system and Wireless LAN system; c) Radio system; d) Recording system; e) CCTV system and Video transmitting system; |

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|---|---|---|-------------------------------|------------------------|--|---|------------|--|--------------|------------------|-------------|---------------------------|------------|-----------|--------------|----------------------------|---------------------|--------------------------|-----------------------|-------------------------------|--------------------------------------|--------------|
| | | f) Millimeter wave communication system; g) PID system; h) PA system; i) Clock system; j) Disaster Prevention system; k) Power supply system; l) PSD system; and m) l) Other if any. | | | | | | | | | | | | | | | | | | | | |
| 24. | ERT, 3) TEL, SECTION 3.12.1 Interface requirements of Telecommunication system | <p>Revise Table 3.12.1 with the following:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 30%; text-align: center;">Telecommunication system name</th> <th colspan="2" style="text-align: center;">Interface requirements</th> </tr> </thead> <tbody> <tr> <td rowspan="8" style="vertical-align: middle;">Telecommunication equipment monitoring system</td> <td style="width: 35%;">MSN system</td> <td>Telephone system and Wireless LAN system</td> </tr> <tr> <td>Radio system</td> <td>Recording system</td> </tr> <tr> <td>CCTV system</td> <td>Video transmitting system</td> </tr> <tr> <td>PID system</td> <td>PA system</td> </tr> <tr> <td>Clock system</td> <td>Disaster Prevention system</td> </tr> <tr> <td>Power supply system</td> <td>Grounding (Earth) system</td> </tr> <tr> <td>PSD system</td> <td>Maintenance management system</td> </tr> <tr> <td>Millimeter wave communication system</td> <td>Other if any</td> </tr> </tbody> </table> | Telecommunication system name | Interface requirements | | Telecommunication equipment monitoring system | MSN system | Telephone system and Wireless LAN system | Radio system | Recording system | CCTV system | Video transmitting system | PID system | PA system | Clock system | Disaster Prevention system | Power supply system | Grounding (Earth) system | PSD system | Maintenance management system | Millimeter wave communication system | Other if any |
| Telecommunication system name | Interface requirements | | | | | | | | | | | | | | | | | | | | | |
| Telecommunication equipment monitoring system | MSN system | Telephone system and Wireless LAN system | | | | | | | | | | | | | | | | | | | | |
| | Radio system | Recording system | | | | | | | | | | | | | | | | | | | | |
| | CCTV system | Video transmitting system | | | | | | | | | | | | | | | | | | | | |
| | PID system | PA system | | | | | | | | | | | | | | | | | | | | |
| | Clock system | Disaster Prevention system | | | | | | | | | | | | | | | | | | | | |
| | Power supply system | Grounding (Earth) system | | | | | | | | | | | | | | | | | | | | |
| | PSD system | Maintenance management system | | | | | | | | | | | | | | | | | | | | |
| | Millimeter wave communication system | Other if any | | | | | | | | | | | | | | | | | | | | |

| Metro Manila Subway Project Phase 1 Package CP106: E&M Systems and Track Works | | | | | | |
|---|---|---|------|-----------------------|------------------------------------|---|
| ITEM NO. | REFERENCE CLAUSE/SECTION | ADDENDUM No. 17 | | | | |
| 25. | ERT, 3) TEL, SECTION 3.12.2 Interface Requirement for Telecommunication System and related system | <p>Revise Table 3.12.2 with the following:</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Item</th> <th style="text-align: center;">Interface requirement</th> </tr> </thead> <tbody> <tr> <td style="color: red;">CP106 Interface with PSD system</td> <td style="color: red;">1. Telecommunication equipment monitoring system Provides a communication line of PSD system to connect from each Station to OCC. The communication line provided is to monitor the operating status of the PSD system. POI is a port of the Telecommunication equipment monitoring system installed in the Telecommunication equipment room.</td> </tr> </tbody> </table> | Item | Interface requirement | CP106 Interface with PSD system | 1. Telecommunication equipment monitoring system Provides a communication line of PSD system to connect from each Station to OCC. The communication line provided is to monitor the operating status of the PSD system. POI is a port of the Telecommunication equipment monitoring system installed in the Telecommunication equipment room. |
| Item | Interface requirement | | | | | |
| CP106 Interface with PSD system | 1. Telecommunication equipment monitoring system Provides a communication line of PSD system to connect from each Station to OCC. The communication line provided is to monitor the operating status of the PSD system. POI is a port of the Telecommunication equipment monitoring system installed in the Telecommunication equipment room. | | | | | |
| 26. | ERT, 10) LHDS, (NEW REQUIREMENT) | <p>Please refer Annex C of this GBB for new requirement,</p> <p>C) TECHNICAL REQUIREMENT'S (ERT) 10) LINEAR HEAT DETECTION SYSTEM (LHDS)</p> | | | | |
| 27. | ERT, Vol II Part 2 Appendix 6 PROVISIONS FOR INTERFACE CONTRACTORS | <p><u>Revised copy as per the Appendix 6</u></p> | | | | |