



General Bid Bulletin No. 11
30 June 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

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

Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
1	<p>PART 2 – Employer's Requirement, ERT-361 & ERT - 411, 4.1.1 (2), Electric Companies MERALCO, PELCO III, SFELAPCO, AEC and CEDC (hereunder electric companies) power connection work where described in this ERT, the work shall include all arrangements and costs associated with new electric companies' power supply to each traction Substation (SS) to be installed under the contract. The work as described below shall be carried out by the Contractor.</p> <p>i. Construction of power receiving equipment including receiving Cable from 69kV VCT of electric companies within premises of each SS.</p> <p>ii. Procurement and installation of power cable from electric companies VCT box in each SS.</p> <p>iii. Payment of Guarantee Cost and Connection Cost, which is required</p>	<p>As per the requirement stated in the referred clause, Contractor needs to arrange for</p> <p>iii. Payment of Guarantee Cost and Connection Cost, which is required by electric companies upon entering into a contract to receive an electrical supply.</p> <p>iv. Any negotiations with electric companies regarding above shall be carried out by the Contractor.</p> <p>In this regard, we had raised an inquiry with MERALCO to get an estimate and in response to our inquiry MERALCO had asked us endorsement from DOTr. We have reproduced below MERALCO's response for your information.</p> <p>"In as much as we would like to help you, we are bound by the data privacy policy and non-disclosure agreement with DOTr for said project. Thus, if you could submit to us the official endorsement from DOTr (with official letterhead) as the official/authorized contractor for such, then we will be willing to assist you."</p>		<p>The endorsement letter shall not be provided. The Bidder shall discover other means of acquiring related information from power supply providers.</p>

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	by electric companies upon entering into a contract to receive an electrical supply. iv. Any negotiations with electric companies regarding above shall be carried out by the Contractor. v. All details of materials and construction work by the Contractor shall follow to electric companies' standards.	Request you to kindly provide us a suitable response enabling us in obtaining an offer from MERALCO.																
2	Part 3 – Conditions of Contract and Contract Forms Section VIII. Particular Conditions, PC-15, KD 4-5, <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">KD 4-5.6: Supply to MMSP CP 107 Contractor for trainsets 1 to 2</td> <td style="text-align: right; font-size: small;">16</td> </tr> <tr> <td style="font-size: small;">KD 4-5.7: Supply to MMSP CP 107 Contractor for trainsets 3 to 7</td> <td style="text-align: right; font-size: small;">18</td> </tr> <tr> <td style="font-size: small;">KD 4-5.8: Supply to MMSP CP 107 Contractor for trainsets 8 to 12</td> <td style="text-align: right; font-size: small;">20</td> </tr> <tr> <td style="font-size: small;">KD 4-5.9: Supply to MMSP CP 107 Contractor for trainsets 13 to 17</td> <td style="text-align: right; font-size: small;">22</td> </tr> <tr> <td style="font-size: small;">KD 4-5.10: Supply to MMSP CP 107 Contractor for trainsets 18 to 22</td> <td style="text-align: right; font-size: small;">24</td> </tr> <tr> <td style="font-size: small;">KD 4-5.11: Supply to MMSP CP 107 Contractor for trainsets 23 to 27</td> <td style="text-align: right; font-size: small;">26</td> </tr> <tr> <td style="font-size: small;">KD 4-5.12: Supply to MMSP CP 107 Contractor for trainsets 28 to 30</td> <td style="text-align: right; font-size: small;">28</td> </tr> </table>	KD 4-5.6: Supply to MMSP CP 107 Contractor for trainsets 1 to 2	16	KD 4-5.7: Supply to MMSP CP 107 Contractor for trainsets 3 to 7	18	KD 4-5.8: Supply to MMSP CP 107 Contractor for trainsets 8 to 12	20	KD 4-5.9: Supply to MMSP CP 107 Contractor for trainsets 13 to 17	22	KD 4-5.10: Supply to MMSP CP 107 Contractor for trainsets 18 to 22	24	KD 4-5.11: Supply to MMSP CP 107 Contractor for trainsets 23 to 27	26	KD 4-5.12: Supply to MMSP CP 107 Contractor for trainsets 28 to 30	28	We request you to consider the proposed key dates for delivery of On-Board Units to MMSP CP107 Contractor from Month 16 to Month 28. Considering that the design finalization is happening only by the 12th month (as per KD 4-1), we need at least additional 12 months to complete the procurement, manufacturing and delivery for the on-board units. We therefore request you to kindly re-arrange the KDs as per the following:		The Bidder's request is rejected. Reference to the ERG 20 Interface Management, the Contractor shall interface and coordinate with the Interface Contractor, e.g. design coordination and construction/installation interface.
KD 4-5.6: Supply to MMSP CP 107 Contractor for trainsets 1 to 2	16																	
KD 4-5.7: Supply to MMSP CP 107 Contractor for trainsets 3 to 7	18																	
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		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>KD 4-5.6</td><td>24</td></tr> <tr><td>KD 4-5.7</td><td>26</td></tr> <tr><td>KD 4-5.8</td><td>28</td></tr> <tr><td>KD 4-5.9</td><td>30</td></tr> <tr><td>KD 4-5.10</td><td>32</td></tr> <tr><td>KD 4-5.11</td><td>34</td></tr> <tr><td>KD 4-5.12</td><td>36</td></tr> </table>	KD 4-5.6	24	KD 4-5.7	26	KD 4-5.8	28	KD 4-5.9	30	KD 4-5.10	32	KD 4-5.11	34	KD 4-5.12	36		
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KD 4-5.9	30																	
KD 4-5.10	32																	
KD 4-5.11	34																	
KD 4-5.12	36																	
3	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT - 810, N17.03 Bogie Turntable 2.1 4. iv., The turntable is manually operated and capable of rotating a bogie 360° in either direction and conforms to requirements for the turntable pit. Interface requirement: Main Current supply to MCC	Can you please clarify, if the Bogie Turntables has be manually operated or electrically (via a motor) operated.		Bogie turntables shall be electrically operated.														
4	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT - 710, Table 8.13	It is understood that a real time wheel geometry measurement system shall be provided at the depot. Please clarify what shall be the maximum measuring speed of this		The Bidder's understanding is correct.														

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	Real time wheel geometry measurement system of special tools N01, A Real time wheel geometry measurement system shall be provided at the depot	system. We understand that the maximum speed at a depot is usually 25km/h. As the system will be installed at an area with regular traffic, we would assume that the design criteria for the system shall be 25km/h. Please confirm.		
5	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT -1051, 11.1.2.4 CMMS – Scope of works, Field device shall include but not limited to: Tablets; Handheld devices; and Maintenance laptops	It is understood that the scope of works for the CMMS includes Tablets; Handheld devices; and Maintenance laptops. Please provide an overall number or an estimation how many of such devices are expected to be delivered?		The contractor shall provide, propose the quantity for the Engineer's final approval at Design Stage. Please refer to ERT 11.1.2.4.
6	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT -1051, 11.1.2.7 CMMS – Scope of works, ntegration of NSCR Maintenance Management System (MMS) with the MCRP and NSRP South CMMS.	It is understood that the scope of works for the CMMS shall cover the Integration of NSCR Maintenance Management System (MMS) with the MCRP and NSRP-South CMMS. Please clarify the following questions: - What are the assets related information needed to be communicating between these systems? - Shall it be a two-way communication between the systems (Inbound/ Outbound/ Bi-		Bidder to supply CMMS for NS-01 system which consists of MCRP and NSRP section and CMMS shall integrate with NSCR MMS for centralized control purpose. Bidder can refer to ERT 11.1.1.1 and ERT 11.4 for further understanding of scope of work and functionality description. Please refer to Annex B.

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		Directional) or a one directional communication between the external and the project CMMS? - outline what are objectives of the interface?		
7	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT -1064/65, Clauses No. 11.5.1.14 to 11.5.1.17, Interface Requirements	Please re-confirm our understanding that the CMMS will be the central repository and master database where the consolidated asset and maintenance related information will be maintained.		The Bidder understanding is correct.
8	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT -1061, Clauses No. 11.4.6.3, .4, .9, The CMMS software shall be able to be interfaced with BIM software packages, requirements management software and Enterprise Document Management Systems Approved by the Engineer.	The requirement is understood. Please clarify the following topics: Please provide the brand name of the BIM software package & requirement management Software. What are information needed to be communicating between these systems: Shall it be a two-way communication between the systems or a one way direction from BIM/ Requirements Software to the Project CMMS? What are the objectives of this interface?		The Bidder may refer to GBB 5- Annex B for the information on BIM for the objective and communication details. COBIE and Asset Management Section.

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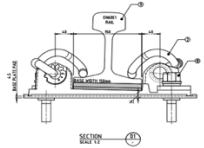
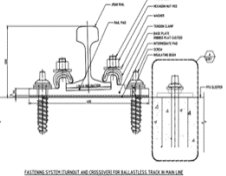
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9	Part 2 – Employer’s Requirements Section VI. Employer’s Requirements Technical Requirements -Depot Facilities, ERT -1061, 11.4.6.6 Interfacing, The CMMS software shall be able to be interfaced with legacy software EAM software of the operator (SAP, ORACLE etc.) if required.	The requirement is understood. Please clarify the following questions? - What are objectives of the interface? - What do you intend to do with the data or information extracted from these systems? - Shall it be a two-way communication between the systems (Inbound/ Outbound/ Bi- Directional) or a one directional between the external system(s)and the project CMMS?		Based on ERT 11.4.6.6, The CMMS software shall be able to interface with legacy software EAM software operator (SAP, ORACLE, etc) if required for centralised control purpose. As of now, there is no legacy EAM software for packages stated in ERT 11.1.1.1.
10	GBB 5 NSCR-GC-LWD-ZWD-TDC-BM- 000001, Rev 1, 22-Feb-2021, Page 146/317, 11.11 BIM Uses, Project BIM uses are defined in the EIR, for more information, please refer to Section 1.3.1 to 1.3.4 of the EIR document 270235_REP_0010_D9_Info Mgt Plan	Please kindly provide the EIR document 270235_REP_0010_D9_Info Mgt Plan		The Bidder’s request is rejected. The document will be provided upon project commencement.
11	Volume II, Section VI ©, ERT-25, 1.12.12, Guard rails shall be installed in main line on all curves with a center line radius of less than 250m.	Bidder could not find curve radius less than 250m in the main line, however location for radius less than 250 m is observed at Maintenance Base track (NSRP-SW-ALT-SK-D- 0002) and DAL (MCRP-DWG-ALT04-SK-0005).		Guard rail is required at the inner or outer rail of the curve with less than 250m at Mainline and Depot Access Line. And in depot on 200m or less radius curves except turnouts.

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	and in depot on 200m or less radius curves except turnouts.	Please confirm that guard rail for Maintenance Base track and DAL is NOT required.		Guard rail in Maintenance base is not required. Guard rail in Depot Access Line is required.
12	Volume II, Section VI ©, ERT-30, Cl. 1.13.8 / 1), The resistance to longitudinal movement of the rail with respect to a baseplate shall be a minimum 9kN throughout the life of the fastening system. Preference shall be given to a fastening system capable of being adapted to provide both zero and low toe loads to suit requirements for structural flexure and thermal expansion of concrete beneath the rail, where required by the civil structure design.	Bidder understands that for the Main line, Pandrol fastening system with base plate (MCRP-DWG-GEN-TK-0212) is required where e-1883 clip has been used. Bidder also noticed the longitudinal resistance shall be minimum 9kN which is not usually permitted for the use of booted sleeper track on viaduct. As low creep resistance for rail longitudinal restraint is required for CWR, Bidder proposes or understand low creep resistance is required. Bidder also confirms from vendor that 5+/-2kN would be the proposed value tested according EN13145-1. Please clarify Bidder's understanding and proposal.		ERT 1.13.8 / 1) shall prevail. 9kN is the minimum longitudinal resistance for 2 rails. The Contractor shall propose during detailed design stage subject to Engineer's approval.
13	Volume II, Section VI ©, ERT-32, 1.14.1 / 1), PSC mono-block sleeper for the concrete track bed shall be pre-tensioned using high tensile pre-	Referring to this specification, Bidder understands that Bidder can select pre-stressed sleeper for the main line, although the drawing shown in MCRP-DWG-GEN-TK-0205 is for Post-		The Bidder's understanding is correct. The Contactor shall propose and subject to the Engineers approval at appropriate time.

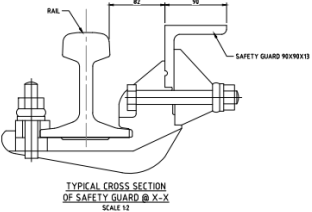
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	<p>stressing wires on the long line process, or alternatively may be post-tensioned. Sleepers shall be a minimum of 2200 mm in length.</p>	<p>tensioned type.</p> <p>Bidder understands Bidder can propose for pre-stressed sleeper confirming JIS E 120 and the points mentioned in Cl. 1.14.1.</p> <p>Please confirm.</p>		
14	<p>Volume II, Section VI (d), Page 64 of 32 Page 66 of 321, MCRP-DWG-GEN-TK-0212</p>  <p>MCRP-DWG-GEN-TK-0215</p> 	<p>Bidder found the fastening system to be used in Main line is Pandrol base plate type however for the turnout fastening system is different supplier type.</p> <p>Bidder would like to propose to use the same Pandrol type fastening system for the Turnout (main line and Depot). Please confirm.</p>		<p>The bidder shall propose suitable fastening system for turnouts following the requirements stated in ERT 1.13. Subject to Engineer's approval.</p>

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15	<p>Volume II, Section VI (d), Page 76 of 321, MCRP-DWG-GEN-TK-0250</p> 	<p>Bidder would like to clarify what is the purpose of using Groove in the guard angle.</p>		<p>Drawing MCRP-DWG-GEN-TK-0250 is for reference only. The groove is to prevent the rising up when the wheel impact the guard rail. The contractor shall propose suitable guard rail design subject to Engineers approval at appropriate time.</p>
16	<p>Volume II, Section VI (d), Page 76 of 321, MCRP-DWG-GEN-TK-0250,</p>	<p>For the safety guard rail, Bidder understand to provide guard rail at both sides (Inner and Outer rail). Bidder would like to clarify whether the shape of the guard rail can be straight (Same as in ITB) or is it required to make it curve? Please clarify.</p>		<p>Guard rail is required at the inner or outer rail of the curve with less than 250m at mainline and depot access track. Less than 200m in depot test track.</p> <p>Drawing MCRP-DWG-GEN-TK-0250 is for reference only. Guard rail needs to be curve accordingly with the running rail. Bidder shall propose suitable guard rail design subject to approval by the Engineer at appropriate time.</p>
17	<p>Volume II, Section VI, , ERG-96, 97, 22.3 / 22.12, 22.3. The Contractor shall implement "ComplyPro" as the Requirement management software</p>	<p>The bidder understood that NS01 Contractor shall implement ComplyPro for own scope of work.</p>		<p>The Bidder's understanding is correct to the first and second question. There will be guidelines for the database setup. However, the guidelines for database setup</p>

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	<p>for tracking and management of requirements compliance in the project.</p> <p>22.12. The Contractor shall have sufficient licenses for their own use to cover their scope of works and activities to be undertaken.</p>	<p>Please clarify if the ComplyPro to be implemented by NS01 is used and accessed by only NS01 Contractor and Engineer/Employer without any other interface Contractors.</p> <p>Please also clarify if there is any guideline for database set-up to unify the format / report for all contract packages.</p>		<p>shall be provided by the approved ComplyPro vendor in this project, after the contract award.</p>
18	<p>Part 2, Section VI, ERT-470 ERT-477 ERT-510 ERT-517 ERT-518, 5.3.1 (5) – 13) 5.6.5 (2) 5.3.1 (5) – 13) 5.6.5 (2), IEC 60034 for generators</p> <p>The emergency generator equipment shall also be capable of withstanding maximum overspeed without any damage, as defined in IEC 60034.</p>	<p>The bidder would request to include Generator's Japanese Standards of JIS, JEC, JEM, Fire Service Act and Air Pollution Control Act.</p>		<p>The contractor may propose alternative/relevant standards which shall be submitted to the Engineer for Approval.</p>

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	<p>IEC 60034 for generators</p> <p>The emergency generator equipment shall also be capable of withstanding maximum overspeed without any damage, as defined in IEC 60034.</p> <p>The emergency generators and exciters shall be of the totally enclosed, brushless type, and shall comply with the requirements of IEC 60034.</p> <p>The emergency generator and exciter winding insulation shall conform as a minimum to temperature 'Class F' in accordance with IEC 60034.</p>			
19	<p>Part 2, Section VI, ERT-470 ERT-510, 5.3.1 (4) 5.3.1, 400V-230V indoor enclosed type low voltage diesel engine generator set including generator</p>	<p>The bidder requests to add the cooling tower type as generator cooling system. The cooling tower system will be suitable for large capacity generator like 1,000kVA. Please confirm.</p>		<p>This is a design and build project. The contractor shall submit the design proposal for approval by the Engineer</p>

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	panel and batteries for starting generator; Fuel tank; Radiator cooling system; Exhaust duct; Mufflers.			
20	Part 2, Section VI	The bidder considers that DAO-2000-81 Part VII Pollution from Stationary Sources Table 2 shall be applied as the emission standard of diesel engine generator. Please confirm.		The Bidder shall propose alternative standards which shall be submitted to the Engineer for Approval.
21	Part 2, Section VI, ERT-1023, 10.1.5 (6), The contractor shall design and construct the drop wall structure between concrete slab and PSD for the full length of the platform.	The bidder understands that drop wall structure is referring to a fire resistance board located at the back (ceiling to PSD) of the Platform Screen Door header region. If our understanding is incorrect, please provide more information on the drop wall structure.		Drop wall is a fire resistance structure located from ceiling to top of Platform Screen Door
22	Part 2, Section VI, ERT-1027, Table 10.3,	For status such as "PSD on right side all closed and locked" and "PSD on left side all closed and locked", we interpret "left" and "right" as the platform on the left and platform on the right. Please confirm is this correct.		The Bidder's understanding is correct
23	Part 2, Section VI, ERT-1035, 10.6.1 (10), The Contractor shall supply and install the LED lighting at the edge	Please advise the function of the LED lighting and quantity of LED indicator is needed. Also,		The contractor shall propose design for the approval of the Engineer. The Bid conditions shall prevail.

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	and inside the top cover of the HH PSD at both trackside and platform side. This LED lighting shall be weatherproof and cover the whole length of the platform including at the FS, EED, FDP locations except at the ASD. This lighting shall be weatherproof and at diameter 20mm, color temperature 5000k, 200 lux on the floor. The platform side and trackside lighting circuits shall be independently controlled by timer and with bypass manual control.	please advise under what scenario the LED lightning shall be bypass.		

Annex B

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ITEM NO.	REFERENCE/CLAUSE/ SECTION	REVISIONS / AMENDMENTS
Volume II Part 2 – Employer’s Requirements		
1	ERT 18	Revised ERT 1.10.1 2) “The Contractor shall prepare the finished viaduct deck for the installation of the trackwork. The Contractor will be responsible for construction of the track bed concrete to a level 650 mm below proposed top of rail level to an unformed concrete finish.”
2	ERT 1041	Remove ERT 11.1.2.7
Volume III Part 2 – Employer’s Requirements d) Employer’s Drawings		
3	5a_CP NS-01BD Part2 Vol 3 NSRP-DWG-GEN-TK-0011	Revised Schematic drawing reflecting Buendia and Sucat Alignment future changes for Bidding reference only.
4	5a_CP NS-01BD Part2 Vol 3 NSRP-DWG-GEN-TK-0012	Revised Schematic drawing reflecting Sta. Rosa Alignment future changes for Bidding reference only.

Annex B – Attachment 1

- 7) At the end of the Project, prior to the contract completion, the Engineer and the Contractor shall conduct a final inspection jointly. Prior to this final inspection, the Contractor shall have satisfied himself that the works are in a fit condition for acceptance and that he has provided the Engineer with all the test results relative to the length to be inspected.

1.9.5 Alignment and Setting Out

- 1) The horizontal alignment prepared by the Contractor shall represent the longitudinal centerline of the track at rail level.
- 2) The vertical profile shall show the level of the centerline of the railhead. On canted track, the level shown on the vertical profile is that of the low rail, the cant shall be applied by lifting the high rail above the low rail.
- 3) The track gauge shall be 1435 mm measured 14 mm below the top of the rails.
- 4) Permanent track datum points shall be established along the mainline at standard 10 m intervals. These datum points are set to the exact horizontal and vertical position for the construction and management of the track with reference to the construction survey grid and datum. The "best fit" track with slight modifications to planned alignment must satisfy the running safety and the riding quality of the train, must obtain the approval from the Engineer.
- 5) The "best fit" alignment along with the check lists shall be submitted to the Engineer, for approval.

1.10 Installation

The Contractor may propose alternative installation methods to those described in this Specification which are subject to Approval by the Engineer. The Contractor must clearly demonstrate that his proposed method will deliver at least the same accuracy and durability.

1.10.1 Concrete Track Bed

- 1) The Contractor shall review the design of the reinforced concrete track bed to suit the proposed fastening system, including the provision for collecting stray currents, and integrate with the civil contractors on the location of starter bars cast in the viaduct and the embankment areas.
- 2) The Contractor shall prepare the finished viaduct deck for the installation of the trackwork. The Contractor will be responsible for construction of the track bed concrete to a level 650 mm below proposed top of rail level to an unformed concrete finish.
- 3) The Contractor shall install the track bed throughout the elevated structures, embankment sections and transition zones. This shall provide an accurately generated surface on to which elastic sleeper installation shall be fixed.
- 4) The track bed in the form of a reinforced concrete bed shall be keyed into the first stage concrete by protruding reinforcement (shear connectors) installed by the civil structure’s contractors, such that no relative movement can occur under load.
- 5) The minimum thickness of the track bed shall be 200 mm under the foot of the rail

- 7) At the end of the Project, prior to the contract completion, the Engineer and the Contractor shall conduct a final inspection jointly. Prior to this final inspection, the Contractor shall have satisfied himself that the works are in a fit condition for acceptance and that he has provided the Engineer with all the test results relative to the length to be inspected.

1.9.5 Alignment and Setting Out

- 1) The horizontal alignment prepared by the Contractor shall represent the longitudinal centerline of the track at rail level.
- 2) The vertical profile shall show the level of the centerline of the railhead. On canted track, the level shown on the vertical profile is that of the low rail, the cant shall be applied by lifting the high rail above the low rail.
- 3) The track gauge shall be 1435 mm measured 14 mm below the top of the rails.
- 4) Permanent track datum points shall be established along the mainline at standard 10 m intervals. These datum points are set to the exact horizontal and vertical position for the construction and management of the track with reference to the construction survey grid and datum. The "best fit" track with slight modifications to planned alignment must satisfy the running safety and the riding quality of the train, must obtain the approval from the Engineer.
- 5) The "best fit" alignment along with the check lists shall be submitted to the Engineer, for approval.

1.10 Installation

The Contractor may propose alternative installation methods to those described in this Specification which are subject to Approval by the Engineer. The Contractor must clearly demonstrate that his proposed method will deliver at least the same accuracy and durability.

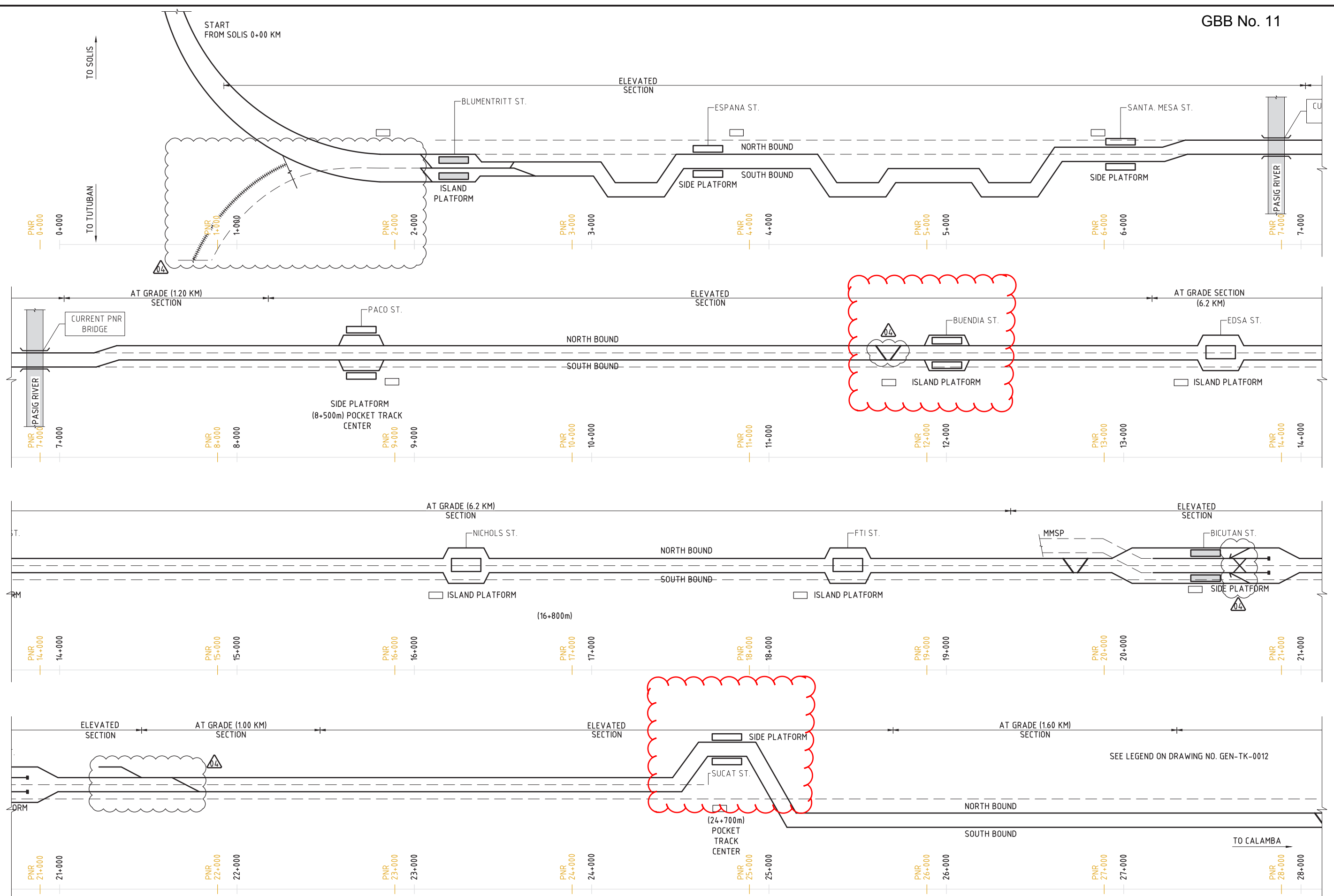
1.10.1 Concrete Track Bed

- 1) The Contractor shall review the design of the reinforced concrete track bed to suit the proposed fastening system, including the provision for collecting stray currents, and integrate with the civil contractors on the location of starter bars cast in the viaduct and the embankment areas.
- 2) The Contractor shall prepare the finished viaduct deck for the installation of the trackwork. The Contractor will be responsible for construction of the **first stage track bed** concrete to a level 650 mm (**minimum**) below proposed top of rail level to an unformed concrete finish.
- 3) The Contractor shall install the track bed throughout the elevated structures, embankment sections and transition zones. This shall provide an accurately generated surface on to which elastic sleeper installation shall be fixed.
- 4) The track bed in the form of a reinforced concrete bed shall be keyed into the first stage concrete by protruding reinforcement (shear connectors) installed by the civil structure’s contractors, such that no relative movement can occur under load.
- 5) The minimum thickness of the track bed shall be 200 mm under the foot of the rail

- 11.1.2.1 Application and Data servers in dual redundant configuration and with the necessary software to be provided in the Mabalacat Depot and Banlic Depot.
- 11.1.2.2 CMMS Workstation and necessary software shall be provided at operator positions in the following locations including but not limited to and subject to the Engineer approval :
 - a) OCC;
 - b) Depots;
 - c) Warehouse;
 - d) Maintenance Workshops;
 - e) Maintenance Facilities Buildings; and
 - f) Maintenance Office at Stations.
- 11.1.2.3 The Contractor shall provide a schedule of peripheral equipment, including but not limited to printers for reporting, and any other requirement for comprehensive maintenance management. The Contractor shall state the performance requirement and quantity for equipment to be supplied and delivered which will be approved by the Engineer.
- 11.1.2.4 Field devices, used to collect configuration data and failure data from the railway assets or perform maintenance activities. The Contractor shall quantify and specify the field devices at the end of final design for Approval by the Engineer. Field device shall include but not limited to:
 - a) Cordless Bar code scanners;
 - b) Tablets;
 - c) Handheld devices; and
 - d) Maintenance laptops.
- 11.1.2.5 A software development server with all necessary software and hardware for creating, testing and modification of the configuration for real-time database, human machine interface (HMI) and also the source code of any project of any specific software. This software development server will be located in the Mabalacat Depot.
- 11.1.2.6 Workstation and laptops to be supplied with CMMS software license.
- 11.1.2.7 Integrated DRACAS (Data Reporting, Analysis and Corrective Action System) database.
- 11.1.2.8 Enterprise Asset Management.
- 11.1.2.9 Operation and maintenance manuals.
- 11.1.2.10 Training of the maintenance staff, and
- 11.1.2.11 Technical support during the initial two (2) years after receiving the Taking Over Certificate.

- 11.1.2.1 Application and Data servers in dual redundant configuration and with the necessary software to be provided in the Mabalacat Depot and Banlic Depot.
- 11.1.2.2 CMMS Workstation and necessary software shall be provided at operator positions in the following locations including but not limited to and subject to the Engineer approval :
 - a) OCC;
 - b) Depots;
 - c) Warehouse;
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 - a) Cordless Bar code scanners;
 - b) Tablets;
 - c) Handheld devices; and
 - d) Maintenance laptops.
- 11.1.2.5 A software development server with all necessary software and hardware for creating, testing and modification of the configuration for real-time database, human machine interface (HMI) and also the source code of any project of any specific software. This software development server will be located in the Mabalacat Depot.
- 11.1.2.6 Workstation and laptops to be supplied with CMMS software license.
- 11.1.2.7 ~~Integration of NSCR Maintenance Management System (MMS) with the MCRP and NSRP South CMMS.~~
- 11.1.2.8 Integrated DRACAS (Data Reporting, Analysis and Corrective Action System) database.
- 11.1.2.9 Enterprise Asset Management.
- 11.1.2.10 Operation and maintenance manuals.
- 11.1.2.11 Training of the maintenance staff, and
- 11.1.2.12 Technical support during the initial two (2) years after receiving the Taking Over Certificate.

WVR-298



Last modified by FT6260228 / 17 Jun 2019
 Filename: V:_Vault\Projects\7051194\NSRP-SL\CAD\DWG\05_TK_Track Design\NSRP-DWG-GEN-TK-0011

VERSIONS	DATE	DESCRIPTION
03	15 MAY 2019	ISSUED FOR REFERENCE
04	17 JUNE 2019	REVISED / 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.

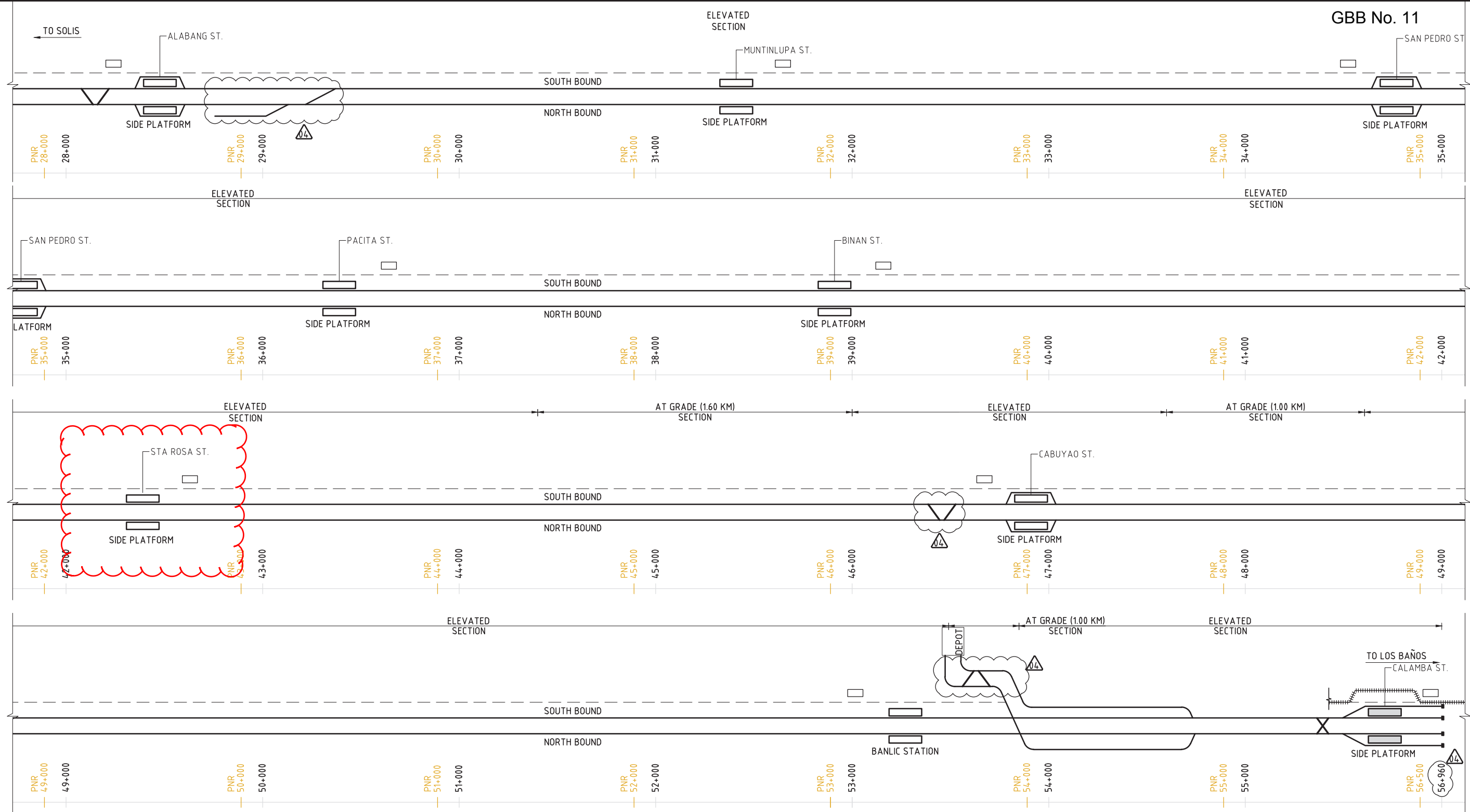
TITLE	JDT	SMEC
DESIGNER	S. YOSHIMOTO	R. ACOSTA JR.
CHECK	S. HASHIMOTO	V. BALAKRISHNAN
TEAM LEADER	N. MATSUMOTO	W. FRENCKEN
P. MANAGER	N. KAWAI	R. YUZON JR.

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

FOR REFERENCE

NSRP SOUTH LINE SCHEMATIC DIAGRAM SHEET 1

DATE	JUNE 2019
SCALE	AS SHOWN IN A1
SHEET No.	
DRG No.	NSRP-DWG-GEN-TK-0011
DRG S.	REV 04



LEGEND

- NSRP TRACK
- - - EXISTING PNR TRACK
- ##### TEMPORARY PNR TRACK
- ▭ NSRP PLATFORM
- ▭ TEMPORARY PNR PLATFORM
- ∇ # SINGLE CROSS OVER
- ≡ BRIDGE
- BUFFER STOP
- ⊗ RAIL EXPANSION JOINT

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DEPARTMENT OF TRANSPORTATION (DOT)
 PHILIPPINE NATIONAL RAILWAYS

CONSULTANT

JICA DESIGN TEAM (JDT)

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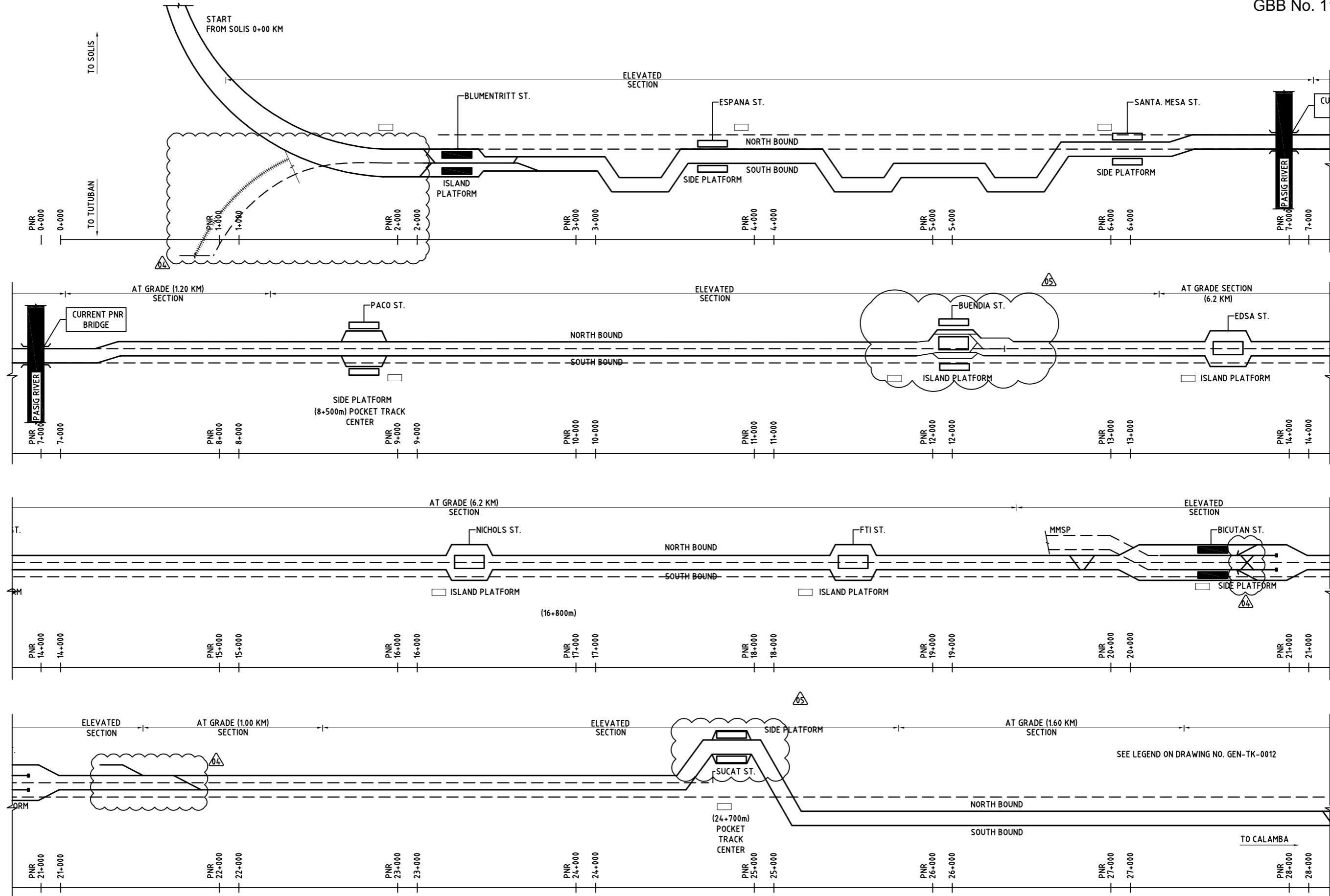
TITLE	JDT	SMEC
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CHECK	S. HASHIMOTO	V. BALAKRISHNAN
TEAM LEADER	N. MATSUMOTO	W. FRENCKEN
P. MANAGER	N. KAWAI	R. YUZON JR.

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

FOR REFERENCE

NSRP SOUTH LINE SCHEMATIC DIAGRAM SHEET 2

DATE	JUNE 2019
SCALE	AS SHOWN IN A1
SHEET No.	
DRG No.	NSRP-DWG-GEN-TK-0012
DRG S.	REV 04



VERSIONS	DATE	DESCRIPTION
03	15 MAY 2019	ISSUED FOR REFERENCE
04	17 JUN 2019	REVISED/ISSUED FOR REFERENCE
05	16 JUN 2021	BUENDIA AND SUCAT STATION REVISED

DEPARTMENT OF TRANSPORTATION (DOTr)
 PHILIPPINE NATIONAL RAILWAYS

CONSULTANT

JICA DESIGN TEAM (JDT)

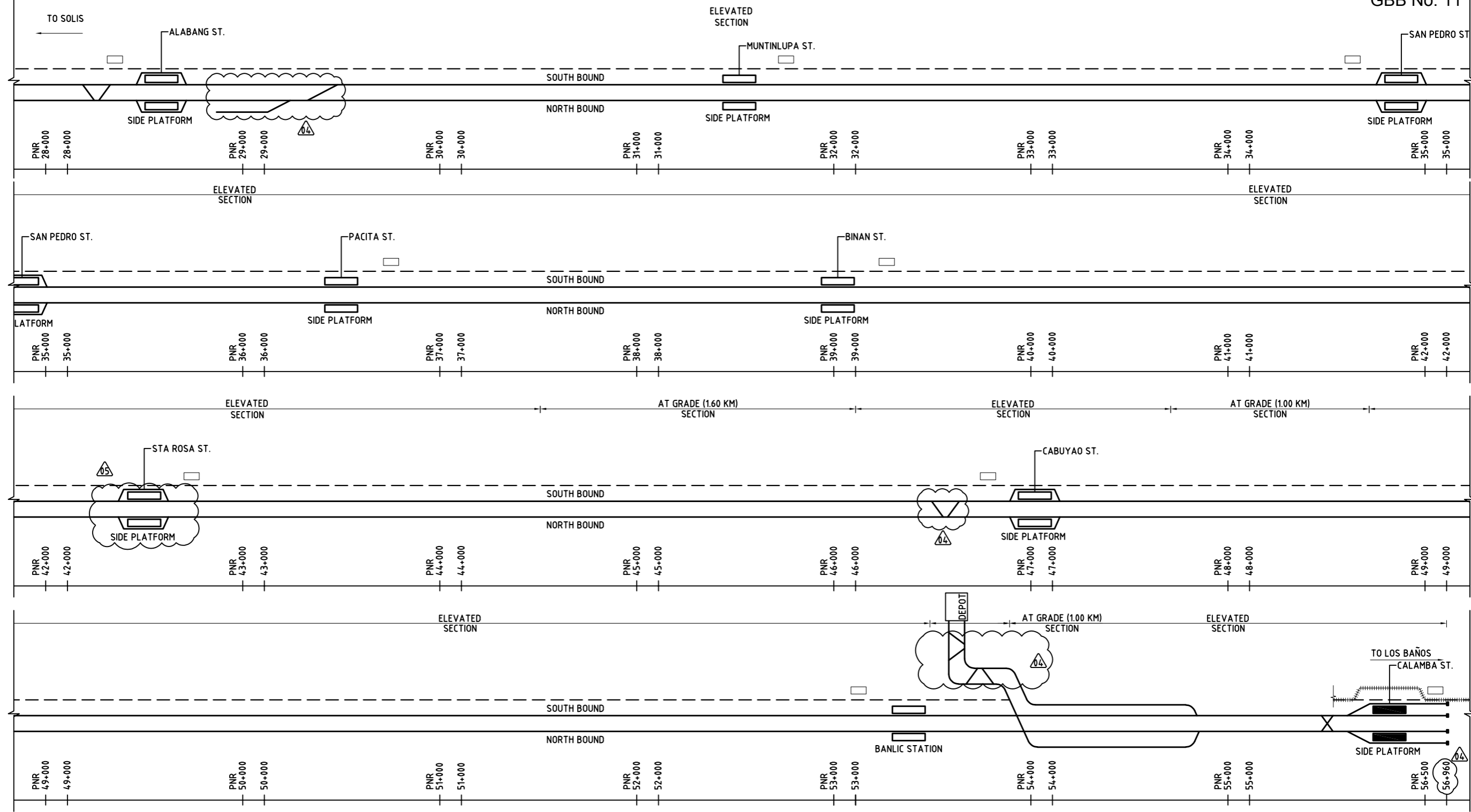
TITLE	JDT	SMEC
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MALOLOS – CLARK RAILWAY PROJECT (MCRP)
 NORTH SOUTH RAILWAY PROJECT–SOUTH (NSRP–SOUTH)

Package CP NS-01 : Bidding Documents

NSRP SOUTHLINE
 SCHEMATIC DIAGRAM
 SHEET 1

DATE	JUNE 2019
SCALE	AS SHOWN IN A1
SHEET No.	-
DRG No.	NSRP-DWG-GEN-TK-0011
DRG S.	-
REV	05



LEGEND

	NSRP TRACK
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	TEMPORARY PNR TRACK
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	TEMPORARY PNR PLATFORM
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	BRIDGE
	BUFFER STOP
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VERSIONS	DATE	DESCRIPTION
03	15 MAY 2019	ISSUED FOR REFERENCE
04	17 JUN 2019	REVISED/ISSUED FOR REFERENCE
05	16 JUN 2021	SANTA ROSA STATION REVISED

DEPARTMENT OF TRANSPORTATION (DOTr)
 PHILIPPINE NATIONAL RAILWAYS

CONSULTANT

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 Tokyo Metro Co.,Ltd.

MALOLOS – CLARK RAILWAY PROJECT (MCRP)
 NORTH SOUTH RAILWAY PROJECT-SOUTH (NSRP-SOUTH)
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