

**SANRAL**

SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD



Reg.No.1998/008584/30

BUILDING SOUTH AFRICA  
THROUGH BETTER ROADS

**THE SOUTH AFRICAN NATIONAL  
ROADS AGENCY SOC LIMITED**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE  
TOLL PLAZAS ON THE N17 TOLL ROAD**

**PROJECT DOCUMENT**

BASE DATE: MARCH 2024

TENDER DOCUMENT

VOLUME 3

BOOK...1...OF...1...

CHIEF EXECUTIVE OFFICER  
SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED  
48 TAMBOTIE AVENUE  
VAL DE GRACE  
PRETORIA, 0184

NAME OF TENDERER: .....



# **THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL  
PLAZAS ON THE N17 TOLL ROAD**

THIS DOCUMENT IS ISSUED BY SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

UNDER THE DIRECTION OF THE REGIONAL MANAGER

The Regional Manager (Northern Region)  
The South African National Roads Agency SOC Ltd  
38 Ida Street  
Menlo Park  
Pretoria,  
0081

## LIST OF CONTRACT DOCUMENTS

The following documents form part of this Agreement:

### **VOLUME 1: CONDITIONS OF CONTRACT**

- Volume 1, Book 1*      *Conditions of Contract for Design, Build and Operate Projects (2008), issued by the Fédération Internationale des Ingénieurs – Conseils (FIDIC) which the Tenderer shall purchase himself*
- Volume 1, Book 2*      *Particular Conditions of Contract (October 2010)*

### **VOLUME 2: EMPLOYER'S REQUIREMENTS**

- Volume 2, Book 1a*      *Standard Specifications for Operations and Maintenance of CTROM Projects: Part A: Glossary of Terms (October 2010) and Part B: Generic Scope of Works (October 2010)*
- Volume 2, Book 2a*      *Standard Specifications for Operations and Maintenance of CTROM Projects: General (October 2010)*
- Volume 2, Book 3*      *Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment (October 2010)*
- Volume 2, Book 4a*      *Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (October 2010)*
- Volume 2, Book 5*      *Standard Specifications for Operations and Maintenance: Electronic Toll Collection (ETC) (September 2010)*
- Volume 2, Book 6a*      *Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (October 2010)*
- Volume 2, Book 7a*      *Standard Specifications for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (October 2010)*
- Volume 2, Book 8a*      *Standard Specifications for Operations & Maintenance of CTROM Projects: ETC Interoperability – Business Rules (October 2010)*

### **VOLUME 3: PROJECT DOCUMENT**

The Project Document, containing the tender notice, Conditions of Tender, Tender Data, Returnable Schedules, general and particular conditions of contract, project specifications, Pricing Schedule, Form of offer and Site Information is issued by the Employer (see note 3 below). The Employer's Form of Acceptance and any correspondence from the selected tenderer, performance security-demand guarantee, and all addenda issued during the period of tender will also form part of this volume once a successful tenderer has been appointed.

The conditions of tender are the standard conditions of tender as contained in Annexure C of the STANDARD FOR UNIFORMITY IN ENGINEERING AND CONSTRUCTION WORKS CONTRACTS, AUGUST 2019: Standard conditions of tender, document, which the tenderer may download himself from the CIDB website

<https://www.cidb.org.za/download/100/procurement-documents-templates-and-guidelines/6157/standard-for-uniformity-august-2019.pdf>

### **VOLUME 4: PROJECT INFORMATION DOCUMENT**

- Volume 4*      *Project Information Document*

**Notes to tenderer:**

1. Volume 1 is obtainable from CESA, PO Box 68482, Bryanston, 2021. Tel: (011) 463 2022 Fax: (011) 463 7383, email: [general@cesa.co.za](mailto:general@cesa.co.za)
2. Volume 2 is issued in electronic format (PDF) on the SANRAL's website: <https://www.nra.co.za/service-provider-zone/tenders/open-tenders/>
3. Volume 3 is issued at tender stage in electronic format on SANRAL website (link below) and contains the following files:  
<https://www.nra.co.za/service-provider-zone/tenders/open-tenders/>
  - The full Project Document in PDF format (excluding the standard conditions of tender)
  - The returnable forms in MS Word format
  - The pricing data in MS Excel format
4. The standard conditions may be downloaded from the CIDB website on the following link: <https://www.cidb.org.za/download/100/procurement-documents-templates-and-guidelines/6157/standard-for-uniformity-august-2019.pdf>

At contract stage Volume 3 will be a bound signed paper copy containing the following documents:

- Returnable schedules relevant to the project
  - Agreements and Contract Data
  - Pricing Data
  - Scope of Work
  - Site Information
5. **SUBMISSION OF TENDER** – of the contract documents, only the following elements of Volume 3 needs to be submitted in a neatly bound file and in the following order:
    - a) **Technical Proposal (USB Flash Drive and printed and bound hard copy enclosed in one Envelope)**
      - All Returnable schedules listed in T2.1 List for Returnable Schedule for inclusion in the Technical Proposal.
      - The Returnable Schedules shall be completed in the electronic format stipulated in T2.1 List for Returnable Schedules and stored in a USB Flash Drive and printed and bound hard copy.
      - Where T2.1 List for Returnable Schedule specify submission in a format other than PDF, the specific Returnable Schedule shall be included in both PDF and the stipulated format and stored on the USB Flash Drive.
    - b) **Financial (USB Flash Drive/CD enclosed in one Envelope)**
      - All Returnable schedules listed in T2.1 List for Returnable Schedule for inclusion in the Financial Proposal.
      - The Returnable Schedules shall be completed in the electronic format stipulated in T2.1 List for Returnable Schedule and stored in a USB Flash Drive.
      - Where T2.1 List for Returnable Schedule specify submission in a format other than PDF, the specific Returnable Schedule shall be included in both PDF and the stipulated format and stored on the USB Flash Drive.

Both envelopes shall be sealed in one envelope and submitted in accordance with instructions as stated in the Tender Data.

Information provided by a tenderer over and above the above elements of volume 3 shall be treated as information only and will only be bound into the document if the tenderer notes on Form A4: Schedule of Variations or deviations that the information has a bearing on the tender price.

6. For alternative offers the tenderer shall comply with instructions of item 4.
7. Volume 3 of a Nominated Subcontract for the Design Build, Operations and Maintenance of the Toll System will also be issued at tender stage in electronic format.

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**PART T1:            TENDERING PROCEDURES**

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**PART T1: TENDERING PROCEDURES**

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SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

CONTRACT SANRAL N.017-024-2019/1

FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD

## **T1.1 TENDER NOTICE AND INVITATION TO TENDER (INCORPORATING SBD1)**

**CLOSING DATE (at 11:00): FRIDAY, 12 APRIL 2024**

The South African National Roads Agency SOC Limited (SANRAL) invites tenders for the **CONTRACT SANRAL N.017-024-2019/1 FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**. This project spans between Ermelo in the province of Mpumalanga and the Metropolitan municipality of Ekurhuleni in Gauteng. The approximate duration is 73.5 months including 6 weeks for the Establishment Period. The approximate duration includes the Design-Build and Operation Service Period.

Note: the successful tenderer shall be required to appoint a Nominated Subcontractor that will be nominated by SANRAL, for the Design Build Operations and Maintenance of the Toll System for this project

Only Tenderers who are registered on the National Treasury Central Supplier Database (CSD) and meet the minimum requirements for **Tenderer's relevant experience** as stipulated in clause C.2.1 at the tender closing date, are eligible to tender.

### **TENDER DOCUMENTS**

Tender documents are available from **01 March 2024 at no cost in electronic format downloaded from the SANRAL's website by the following link: [https://www.nra.co.za/sanral-tenders/status?region\\_id=national](https://www.nra.co.za/sanral-tenders/status?region_id=national).**

**Tenderers must have access to MS Office ©2013 and Acrobat Adobe ©9.0, or similar compatible software.**

Tenderers must submit, via email, the duly completed Form A1.1 Certificate of Intention to Submit a Tender prior to **08 March 2024**, 7 (seven) days post the tender advertisement date). Failure to submit this certificate would result in the tenderer not receiving addenda or additional issued information and may result in the tenderer being non-responsive, if "any material amendment/s" contained in the addenda or additional information is not included in the tender offer/submission.

### **TENDERER'S MEETING**

A tender clarification briefing presentation is available to be downloaded from the SANRAL website by the following link: [https://www.nra.co.za/sanral-tenders/status?region\\_id=national](https://www.nra.co.za/sanral-tenders/status?region_id=national). A non-compulsory clarification briefing meeting will be held via a virtual platform on **12 March 2024** where the project will be presented.

A link to the clarification briefing meeting will be sent to tenderers who complete and submit a Certificate of Intention to Submit a Tender (Form A1.1)

A tenderer's representative cannot represent more than one tenderer at the tender briefing meeting.

### **COMPLETION AND DELIVERY OF TENDERS**

The closing time for receipt of tenders is 11:00 on **12 APRIL 2024**.



Telegraphic, telephonic, telex, email, facsimile and late tenders will not be accepted.

Tenders may only be submitted in the format as stated in the Tender Data.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

Queries relating to issues arising from these documents may be addressed to:

E-mail: [procurementNR4@sanral.co.za](mailto:procurementNR4@sanral.co.za)

**T.1.2 TENDER DATA**

The conditions of tender are the standard conditions of tender as contained in Annexure C of the CIDB STANDARD FOR UNIFORMITY IN ENGINEERING AND CONSTRUCTION WORKS CONTRACTS as per Government Notice No. 423 published in Government Gazette No. 42622 of 08 AUGUST 2019 and as amended from time to time.

<https://www.cidb.org.za/wp-content/uploads/2021/07/Standard-for-Uniformity-August-2019.pdf>

The standard conditions of tender make several references to the tender data for details that apply specifically to this tender. The tender data shall have precedence in the interpretation of any ambiguity or inconsistency between the tender data and the standard conditions of tender.

Each item of data given below is cross-referenced to the clause marked “C” in the above mentioned Standard Conditions of Tender.

**Definitions**

Add the following to the definition:

Wherever reference is made in the documentation to bill of quantities it shall also mean schedule of quantities.

Wherever reference is made in the documentation to Contractor it shall also mean Service Provider or Operator.

Each item of data given below is cross-referenced to the clause in the standard conditions of tender to which it mainly applies.

Clause Number	Data
C.1	<b>GENERAL</b>
C.1.1	<p><b>Actions</b></p> <p>The Employer is The South African National Road Agency SOC Limited (SANRAL). The Employer’s domicilium citandi et executandi (permanent physical business address) is:</p> <p style="padding-left: 40px;">48 Tambotie Avenue Val De Grace, Pretoria, 0184</p> <p>The Employer’s address for communication relating to this project is:</p> <p style="padding-left: 40px;">The Regional Manager (Northern Region) The South African National Roads Agency SOC Ltd 38 Ida Street Menlo Park Pretoria, 0081</p>
C.1.2	<p><b>Tender Documents</b></p> <p>The tender documents issued by the Employer comprise:</p> <p><b>VOLUME 1 CONDITIONS OF CONTRACT</b> Book 1 Contract for Design, Built and Operate Projects (2008) published by Fédération Internationale des Ingénieurs-Conseils (FIDIC)</p>

	<p>Book 2 Particular Conditions of Contract (October 2010)</p> <p><b>VOLUME 2 EMPLOYERS REQUIREMENTS: STANDARD SPECIFICATIONS</b></p> <p>Book 1a Standard Specifications for Operations and Maintenance of CTROM Projects: Part A: Glossary of Terms and Part B: Generic Scope of Works (October 2010)</p> <p>Book 2a Standard Specifications for Operations and Maintenance of CTROM Projects: General (October 2010)</p> <p>Book 3 Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment (October 2010)</p> <p>Book 4a Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (October 2010)</p> <p>Book 5 Standard Specifications for Operations and Maintenance of CTROM Projects: Electronic Toll Collection (ETC) (September 2010)</p> <p>Book 6a Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (October 2010)</p> <p>Book 7a Standard Specifications for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (October 2010)</p> <p>Book 8a Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability - Business Rules (October 2010)</p> <p><b>VOLUME 3 PROJECT DOCUMENT</b></p> <p><b>PART T1 TENDERING PROCEDURES</b></p> <p>T1.1 Tender Notice and Invitation to Tender</p> <p>T1.2 Tender Data</p> <p><b>PART T2 RETURNABLE SCHEDULES</b></p> <p>T2.1 List of Returnable Schedules</p> <p>T2.2 Returnable Schedules</p> <p><b>PART C1 AGREEMENT AND CONTRACT DATA</b></p> <p>C1.1 Form of Offer and Acceptance</p> <p>C1.2 Contract Data</p> <p>C1.3 Particular Conditions - Part B: Special Provisions</p> <p>C1.4 Other Standard Forms</p> <p><b>PART C2 PRICING DATA</b></p> <p>C2.1 Pricing Instructions</p> <p>C2.2 Schedule of Payments/Cost Matrix</p> <p><b>PART C3 SCOPE OF WORK</b></p> <p>C3.1 Project Description</p> <p>C3.2 Particular Specifications for Operations and Maintenance</p> <p>C3.3 Environmental Management Plan</p> <p>C3.4 Occupation Health and Safety</p> <p>C3.5 Risk Assessment Plan</p> <p><b>PART C4 SITE INFORMATION</b></p> <p><b>PART D</b> Stakeholder and Community Liaison and Targeted Labour and Targeted Enterprises Utilisation and Development</p> <p><b>PART E ANNEXURES</b></p> <p><b>VOLUME 4 PROJECT INFORMATION DOCUMENT</b></p>
C.1.4	<p><b>Communication and Employer's Agent</b></p> <p>The Employer's Agent during the tender period can be contacted at:</p>

	<a href="mailto:procurementNR4@sanral.co.za">procurementNR4@sanral.co.za</a>
C.1.5	<b>Cancellation and Re-Invitation of Tenders</b>
C.1.5.3	Clause C.1.5.3 is not applicable.
C.1.6.2	<b>Competitive negotiation procedure</b> Clause C.1.6.2 is not applicable.
<b>C.2</b>	<b>Tenderer's Obligations</b>
C.2.1	<p><b>Eligibility</b></p> <p>Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:</p> <ul style="list-style-type: none"> <li>a) National Treasury Central Supplier Database (Form A3.4) Tenderers, or in the event of a Joint Venture, each member of the Joint Venture, shall be registered on the National Treasury Central Supplier Database at the closing date for tender submissions. Tenders received from such tenderers who do not comply with this requirement, will be declared non-responsive.</li> <li>b) Tenderer's Relevant Experience (Form D5.1/D5.2) The tenderer must be able to show that he has relevant experience by providing information of at least: 3 (three) similar or relevant projects, but not necessarily a toll project(s), each to the value of at least R 250 million, which has either started or been completed within the last 15 (fifteen) years, or which is still ongoing (subject to the provisions of Form D5.1 and or Form D5.2). The relevant experience for all 3 projects must be in at least 2 of the key areas of which at least 1 key area of 1 project is required to be in Operations and maintenance of an IT / technology project (but not necessarily toll) and the others from the following: <ul style="list-style-type: none"> <li>i). Operations and maintenance of an IT / technology project (but not necessarily toll);</li> <li>ii). Multi-disciplinary project management;</li> <li>iii). Revenue stream management;</li> <li>iv). Account hosting and / or management;</li> <li>v). Customer Services;</li> </ul> </li> </ul> <p>Failure to satisfy all the eligibility criteria shall result in a non-eligible tender.</p>
C.2.2	<p><b>Cost of tendering</b></p> <p>Tender documents are available from SANRAL website at no cost.</p>
C.2.6	<p><b>Acknowledge addenda</b></p> <p>Failure to apply instructions contained in addenda issued by the Employer will render a Tenderer's offer non-responsive in terms of Condition of Tender C.3.8. Test for Responsiveness.</p>
C.2.7	<p><b>Clarification meeting</b></p> <p>A tender clarification briefing presentation is available to be downloaded from the SANRAL website by the following link: <a href="https://www.nra.co.za/sanral-tenders/status?region_id=national">https://www.nra.co.za/sanral-tenders/status?region_id=national</a>. A <b>non-compulsory</b> clarification briefing meeting will be held via a virtual platform on <b>12 March 2024</b> where the project will be presented.</p> <p>A link to the clarification briefing meeting will be sent to tenderers who complete and submit a Certificate of Intention to Submit a Tender (Form A1.1).</p> <p>A tenderer's representative cannot represent more than one tenderer at the tender clarification briefing meeting.</p> <p>The onus rests with the tenderer to ensure that the representative reading the clarification briefing presentation is appropriately qualified to understand all directives and clarifications given in the presentation.</p>

	The signature on the duly completed and signed Form A1 shall be considered proof that the tenderer read the whole clarification briefing presentation and clearly understood all directives and clarifications given in the presentation.
C.2.8	<p><b>Seek clarification</b></p> <p>Request clarifications at least <b>12 (twelve) working</b> days before the closing date.</p>
C.2.9	<p><b>Insurance</b></p> <p>The Employer has insurance for Employers Facilities, Permanent Design-Build Assets and Equipment provided by the Employer. Refer to C1.2.5 APPENDIX 3 TO CONTRACT DATA: INSURANCE DATA.”</p>
C.2.10	<p><b>Pricing the tender offer</b></p>
C.2.10.3	The rates and prices shall be adjusted as specified in the conditions of contract clause 13.8 Adjustments for Changes in Costs.
C.2.10.4	Tenderers are required to state the rates, amounts and currencies in Rand.
C.2.12	<p><b>Alternative tender offers</b></p>
C.2.12.1	<p>An alternative tender offer shall only be considered from a tenderer whose postulated tender offer is the preferred tender.</p> <p>A tenderer wishing to submit an alternative offer (excluding alternative offers of different contract duration, retention guarantees, discounted offers or different compliant material sources) shall first apply to the Employer’s agent for confirmation that the Employer’s standards and requirements envisaged in the design are not compromised or reduced.</p> <p>Such confirmation must have been provided by the Employer’s agent in writing within 10 working days after receipt of the application but not later than 5 working days before the date and time of tender closing given in Tender Data clause C.2.15, or as extended by an addendum sent to all tenderers.</p> <p>Also, not acceptable as alternative offers are alterations to contingency pay items provided in the bill of quantities (pricing schedule), fixed prices for individual items or a fixed price contract.</p> <p>If an alternative proposal is confirmed to be acceptable, calculations, drawings and all other pertinent technical information and characteristics as well as proposed modification of, or alternative to, the Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer’s standards and requirements and to evaluate the acceptability of the pricing proposals.</p> <p>Calculations must be set in clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.</p> <p>Acceptance of an alternative offer will mean acceptance in principle of the offer. It will be an obligation of the contract with the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer’s standards and requirements.</p>
C.2.13	<p><b>Submitting a tender offer</b></p>
C.2.13.2	<p>The returnable documents shall be electronically completed in their entirety, submitted on the issued software format or fully compatible format, unless otherwise specified.</p> <p><b>Option 1: Submission in the tender box</b></p> <ul style="list-style-type: none"> <li>•Submit the tender offer electronically on a flash drive and printed hardcopy of Form of Offer and summary of pricing schedule.</li> </ul>

	<p>•(In the relevant MS Word 2013 and MS Excel 2013 format as issued, and not in .pdf format, except where so specified.)</p>
C.2.13.5	<p><b>Submitting a tender offer</b></p> <p>In the event of any discrepancy between the contents of the electronically priced schedule in Excel, and the electronically provided pricing schedule in .pdf format, the contents of the electronically pricing schedule in .pdf format shall be taken as the valid contents. For the information provided by the tenderer as part of his submission, e.g. rates, the electronically signed schedule in .pdf shall be taken as the valid submission.</p>
C.2.13.6	<p><b>A two-envelope procedure will apply as follows:</b></p> <p><b>Option 1: Submission in the tender box</b></p> <ol style="list-style-type: none"> <li>1. <i>A folder is provided marked <b>“TECHNICAL PROPOSAL”</b></i> <ol style="list-style-type: none"> <li>a. <i>Ensure that all returnable schedules listed in T2.1 List of Returnable Schedules for inclusion in the Technical Proposal and listed in the Technical Proposal folder are electronically completed on a USB Flash Drive Wherever it is a requirement to attach certificates or letters to the returnable schedules, these should be scanned in, on the Flash Drive in .pdf format. Contents of USB Flash Drive shall be printed and bound in hard copy.</i></li> <li>b. <i>The completed Flash Drive, the printed and bound hard copy should be marked with the tenderer’s company name, the project number and description and marked <b>“TECHNICAL PROPOSAL”</b>.</i></li> <li>c. <i>Scan and insert a valid B-BBEE certificate.</i></li> <li>d. <i>Electronically sign the declaration in the folder.</i></li> <li>e. <i>Insert the electronically completed Flash Drive, the printed and bound hard copy in an envelope marked <b>“TECHNICAL PROPOSAL”</b>.</i></li> </ol> </li> <li>2. <i>A folder is provided marked <b>“FINANCIAL PROPOSAL”</b></i> <ol style="list-style-type: none"> <li>a. <i>Ensure that all returnable schedules listed in T2.1 List of Returnable Schedules for inclusion in the Financial Proposal and listed in the Financial Proposal folder are electronically completed on a Flash Drive (Contract Data and Pricing Schedule). Wherever it is a requirement to attach letters or certificates to the returnable schedules, these should be scanned in, on the USB Flash drive in .pdf format. Contents of Flash Drive shall be printed and bound in hard copy.</i></li> <li>b. <i>The completed Flash Drive, the printed and bound hard copy should be marked with the tenderer’s company name, the project number and description and marked <b>“FINANCIAL PROPOSAL”</b>.</i></li> <li>c. <i>Electronically sign the declaration in the folder.</i></li> <li>d. <i>Complete and electronically sign the Form of Offer and scan into the folder. A draft copy of this form is provided.</i></li> <li>e. <i>Scan and insert a copy of the Summary of Pricing Schedule into the folder.</i></li> <li>f. <i>Insert the electronically completed Flash Drive and the printed and bound hard copy in an envelope marked <b>“FINANCIAL PROPOSAL – DO NOT OPEN WITH TECHNICAL PROPOSAL”</b>.</i></li> </ol> </li> <li>3. <i>Each envelope shall state on the outside the Employer’s address, contract number and title as well as the Tenderer’s name, authorised representative’s name, postal address and contact telephone numbers.</i></li> </ol>

	<p>4. Seal both envelopes in an outer envelope with the words “<b>TENDER</b>” clearly marked and bearing the Employer’s name, contract number and description as well as the Tenderer’s authorised representative’s name, postal address and contact details.</p> <p><i>If a tenderer submits:</i></p> <ol style="list-style-type: none"> <li>1. One envelope with one document or one Flash Drive and printed hard copy (financial and technical); or</li> <li>2. Incorrectly labelled envelopes where the Financial Offer is labelled Technical, and the Technical Offer is labelled financial.</li> </ol> <p><i>The tender will be declared non-responsive.</i></p> <p>The closing date for submission of tender offers is 11h00 hours on <b>12 APRIL 2024</b>.</p>
C.2.14	<p><b>Information and data to be completed in all respects</b></p> <p>Provided that the omission is not a material omission, the Employer reserves the right to condone the omission and may waive any nonconformities in the tender.</p> <p>Provided that the omission is not a material omission, the Employer reserves the right to condone the omission and may request the tenderer to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the tender related to documentation requirements.</p>
C.2.15	<p><b>Closing time</b></p>
C.2.15.1	<p>Option 1</p> <p>Submission in tender box</p> <p>The Employer’s address for delivery of tender offers and identification details to be shown on each tender offer package are:</p> <p>Location of tender box: Reception Area</p> <p>Physical address:  The Regional Manager Northern Region  The South African National Roads Agency SOC Ltd  38 Ida Street  Menlo Park  Pretoria  0081</p> <p>Identification details: Mark the envelope with the tenderer’s company name, the project number and description:</p> <p><b>CONTRACT SANRAL N.017-024-2019/1</b></p> <p><b>FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD.</b></p> <p>Tenders must be submitted during hours (09:00 to 16:00) Monday to Friday at the Employer’s address.</p> <p>It is in the tenderer’s interest to ensure that the delivery of the tender offer is recorded in the Employer’s tenders received register and deposited in the tender box.</p>
C.2.16	<p><b>Tender offer validity</b></p>
C.2.16.1	<p>The tender offer validity period is 24 weeks.</p>
C.2.16.2	<p>Should the tenderer not accept the validity extension or if the tenderer does not withdraw a condition attached to a conditional acceptance, this shall result in a non-responsive tender or the tender is considered to have made an election to exclude itself from the tender process.</p>

C.2.16.3	<p>Where a tenderer, at any time after the opening of his tender offer but prior to entering into a contract based on his tender offer:</p> <ul style="list-style-type: none"> <li>a) withdraws his tender;</li> <li>b) gives notice of his inability to execute the contract in terms of his tender; or</li> <li>c) fails to comply with a request made in terms of C.2.17, C.2.18 or C.3.9,</li> </ul> <p>such tenderer shall be barred from tendering on any of the Employer's tenders for a period to be determined by the Employer, but not less than six (6) months from a date determined by the Employer. This sanction also applies to tenders under evaluation and not yet awarded. This sanction does not apply to tenders under evaluation where a request for extension of the validity period was not accepted by the tenderer. The Employer may fully or partly exempt a tenderer from the provisions of this condition if he is of the opinion that the circumstances justify the exemption.</p>
C2.17	<p><b>Clarification of tender offer after submission</b></p> <p>Any clarification requested under this clause must be provided within 1 (one) working day of date of request.</p>
C.2.18	<p><b>Provide other material</b></p>
C.2.18.1	<p>Any additional information requested under this clause must be provided within 5 (five) working days of date of request.</p>
C.2.19	<p><b>Inspections, tests and analysis</b></p> <p>Access shall be provided for an inspection of the Works on request.</p> <p>The documents indicating all the requirements and procedures as specified are available in Volume 4 of this Tender document.</p> <p>Contact the Employer's Agent at <a href="mailto:procurementNR4@sanral.co.za">procurementNR4@sanral.co.za</a> to arrange for a site visit to visit the toll plaza(s).</p>
C.3	<p><b>The Employer's undertakings</b></p>
C.3.1	<p><b>Responding to requests from the tenderer</b></p> <p>The Employer shall respond to clarifications received up to <b>12 (twelve) working days</b> before tender closing date.</p> <p>The Employer shall respond to any clarifications from the tenderers emanating from the addenda until 3 working days before tender closing date.</p>
C.3.2	<p><b>Issue Addenda</b></p> <p>The employer shall issue addenda until <b>10 (ten) working days</b> before tender closing time.</p>
C.3.4	<p><b>Opening of tender submissions</b></p>
C.3.4.1	<p>Two Envelope system:</p> <p>The time for opening of the technical offer (TECHNICAL PROPOSAL) via live streaming or at the Northern Region Office are:</p> <p>Time: <b>11h00 on 12 APRIL 2024</b></p> <p>Location: <b>A Live Streaming link</b> will be shared with tenderers that submitted A1.1 forms</p>



C.3.5	<p><b>Two-envelope system</b></p> <p>The time for opening of the <b>Financial offers</b> via live streaming shall be communicated to all tenderers having achieved the minimum number of points for quality as prescribed.</p> <p>The financial offer of all tenderers who failed to achieve the minimum number of points for quality shall be returned unopened.</p> <p>Reasons for non-responsive/not achieving the threshold will only be communicated when the tender process is concluded, in terms of Clause C.3.16 of the Tender Data. The scores obtained for the non-financial proposals will not be announced at the opening of the financial offers /proposals.”</p>
C.3.7	<p><b>Grounds for rejection and disqualification</b></p> <p>Prior to disqualification, the Employer shall inform the tenderer and give the tenderer an opportunity to make representations within 14 (fourteen) days as to why the tender submitted should not be disqualified and as to why the tenderer should not be restricted by the National Treasury from conducting any business with any organ of state for a period not exceeding 10 years.</p> <p>In the event of disqualification, the Employer may, at its sole discretion, claim damages from the tenderer and impose a specified period during which tender offers will not be accepted from the offending tenderer and the Employer shall inform the National Treasury.</p>
C.3.8	<p><b>Test for responsiveness</b></p>
C.3.8.2	<p>A Substantially responsive tender is a tender in which all the material information and documentation submitted at close of tender contains non-material and non-conformities to the bid specifications but are not related to price. The correction of any such documentation or information, or the condonement for the non-inclusion of any such document or information may not be prejudicial towards the offer and claimed preference of any responsive tender or be construed to be giving an unfair advantage to any tender.</p> <p>A responsive tender is also one that conforms to all the terms, conditions, and scope of work of the tender documents, without material omissions. The test for a material omission is the same as the test for a material deviation or qualification.</p> <p>SANRAL will cancel the tender should all tenders be non-responsive in terms of Clause C.3.8 and no negotiations will be conducted.</p>
C.3.9.	<p><b>Arithmetical errors, omissions, discrepancies and imbalanced unit rates</b></p>
C.3.9.1	<p>Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount appearing in the Summary of Schedule of Payments/Cost Matrix shall govern.</p>
C.3.9.3	<p>Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers for:</p> <ul style="list-style-type: none"> <li>a) The gross misplacement of the decimal point in any unit rate;</li> <li>b) Omissions made in completing the pricing schedule or Schedule of Payments/Cost Matrix; or</li> <li>c) Arithmetic errors in: <ul style="list-style-type: none"> <li>i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or</li> <li>ii) the summation of the prices.</li> </ul> </li> <li>d) imbalanced unit rates.</li> </ul>

	<p>Notify shortlisted tenderers of all errors, omissions or imbalanced rates that are identified in their tender offers and either confirm the tender offers as tendered or accept the corrected total prices.</p>
<p>C.3.9.4</p>	<p>Where the tenderer elects to confirm the errors, omissions or re-balancing of imbalanced rates the tender offer shall be corrected as follows:</p> <ol style="list-style-type: none"> <li>a) If bills of quantities or Schedule of Payments/Cost Matrix apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the unit rate shall govern, and the line item total shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted, and the unit rate shall be corrected.</li> <li>b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall be corrected.</li> <li>c) Where the unit rates are imbalanced, the tenderer shall adjust such rates by increasing or decreasing them and selected others while retaining the total of the prices derived after any other corrections made under (a) and (b) above.</li> </ol> <p>Where there is an omission of a line item, no correction is possible, and the offer may be declared non-responsive.</p> <p>Should the original price not be retained after balancing, the tenderer will be rendered non-responsive.</p> <p>Declare as non-responsive and reject any offer from a tenderer who elects not to accept the proposed correction of the; errors, omissions or imbalanced rates.</p> <p>During testing of tender responsiveness, clause C.3.8 of CIDB tender conditions will be applicable.</p> <p>The tenderer is required to submit balanced unit rates for rate only items in the pricing schedule. The rates submitted for these items will be taken into account in the evaluation of tenders.</p> <p>If the Form of Offer is submitted but the Pricing Schedule is omitted, where rate only items are applicable; or If a signed Form of Offer is submitted with an incomplete pricing schedule (no summary to tender) that does not balance back to the Form of Offer and the Pricing schedule is incomplete; or If a signed Form of Offer is submitted with an incomplete pricing schedule that does not balance back to the Form of Offer and only summary of Pricing Schedule submitted; then the rates cannot be evaluated and the tender shall be declared non-responsive.</p>
<p>C.3.11</p>	<p><b>Evaluating tender offers</b></p> <p><b>Evaluating price and preference</b></p> <ol style="list-style-type: none"> <li>i. 80/20 preference point system for acquisition of goods and services for Rand value equal to or above R30 000 and up to R50 million</li> </ol> <p>The following formula will be used to calculate thee points out of 80 for price:</p> $Ps = 80(1 - (Pt - Pm) / Pm)$ <p>Where:</p> <p>Ps is the points scored for price of tender under consideration.  Pt is the price of the tender under consideration; and</p>

Pm is the price of the lowest acceptable tender.

- ii. 90/10 preference point system for acquisition of goods and services for Rand value above R50 million

The following formula will be used to calculate three points out of 90 for price:

$$Ps = 90(1 - (Pt - Pm) / Pm)$$

Where:

- Ps is the points scored for price of tender under consideration.
- Pt is the price of the tender under consideration; and
- Pm is the price of the lowest acceptable tender.

In the event that the calculated value is negative, the allocated score shall be 0 (zero).

**Scoring preference (Specific Goals):**

Points for specific goals will be awarded according to the table below:

Specific goals	Criteria	10 points		20 points	
		Point allocation	Maximum points	Point allocation	Maximum points
B-BBEE Level	Level 1	10.00	10.00	20.00	20.00
	Level 2	9.00		18.00	
	Level 3	6.00		14.00	
	Level 4	5.00		12.00	
	Level 5	4.00		8.00	
	Level 6	3.00		6.00	
	Level 7	2.00		4.00	
	Level 8	1.00		2.00	
	Non-compliant contributor	0.00		0.00	

*A valid B-BBEE verification certificate must be submitted.*

**1. The tenderer's scorecard shall be a B-BBEE Certificate issued in accordance with:**

- a) the amended Construction Sector Codes published in Notice 931 of 2017 of Government Gazette No. 41287 on 1 December 2017 by the Department of Trade, Industry and Competition; or
  - in the event that the Measured Entity operates in more than one sector or a sub-sector, the scorecard for the sector or sub-sector in which the majority of its core activities (measured in terms of annual revenue) are located will be acceptable. The tenderer must comply with the annual revenue thresholds for EME or QSE or Generic in accordance with the amended Construction Sector Codes; or
- b) the amended Codes of Good Practice published in Notice 303 of 2019 of Government Gazette No. 42496 on 31 May 2019 by the Department of Trade, Industry and Competition, or;

- c) the Information and Communication Technology (ICT) Sector Codes (Published in Notice 1387 of Government Gazette No. 40407 of 7 November 2016); or
- d) ;the Financial Sector (Published in Notice 1325 of Government Gazette No. 41287 of 1 December 2017); or
- e) The Integrated Transport Sector Codes (Published in Notice 1162 of Government Gazette No. 32511 of 21 August 2019).

**i. The scorecard shall be submitted as a certificate attached to Returnable Schedule Form D1; and**

**ii. The certificate shall:**

- be valid at the tender closing date; and
- have been issued by a verification agency accredited by the South African National Accreditation System (SANAS); or
- be in the form of a sworn affidavit or a certificate issued by the Companies and Intellectual Property Commission in the case of an Exempted Micro Enterprise (EME) with a total annual revenue of less than R3 million if issued in accordance with the amended Construction Sector Codes published in Notice 931 of 2017 of Government Gazette No. 41287 on 1 December 2017 by the Department of Trade, Industry and Competition; and
- have a date of issue less than 12 (twelve) months prior to the original advertised tender closing date (see Tender Data C.2.15); and

**iii. A valid BBEE Certificates shall contain:**

- Name of enterprise as per enterprise registration documents issued by CIPC, and enterprise business address.
- Value-Added Tax number, where applicable.
- The B-BBEE Scorecard against which the certificate is issued, indicating all elements and scores achieved for each element. The actual score achieved must be linked to the total points as per the relevant Codes.
- B-BBEE status with corresponding procurement recognition level.
- The relevant Codes used to issue the B-BBEE verification certificate.
- Date of issue and expiry (e.g. 9 June 2018 to 8 June 2019). Where a measured entity was subjected to a re-verification process, due to material change, the B-BBEE Verification Certificate must reflect the initial date of issue, date of re-issue and the initial date of expiry. Re-verification does not extend the lifespan of the B-BBEE Verification Certificate.
- Financial period which was used to issue the B-BBEE Verification Certificate.

**iv. A valid Sworn Affidavit shall contain:**

- Name/s of deponent as they appear in the identity document and the identity number.
- Designation of the deponent as either the director, owner or member must be indicated in order to know that person is duly authorised to depose of an affidavit.
- Name of enterprise as per enterprise registration documents issued by the CIPC, where applicable, and enterprise business address.
- Percentage black ownership, black female ownership and whether they fall within a designated group.
- Indicate total revenue for the year under review and whether it is based on audited financial statements or management accounts.

	<ul style="list-style-type: none"> <li>- Financial year-end as per the enterprise's registration documents, which was used to determine the total revenue. The valid format of the Financial Year-End is Day/Month/Year</li> <li>- B-BBEE status level. An enterprise can only have one status level.</li> <li>- Date deponent signed and date of Commissioner of Oath must be the same.</li> <li>- Commissioner of Oath cannot be an employee or ex officio of the enterprise because, a person cannot by law, commission a sworn affidavit in which they have an interest, and</li> </ul> <p>v. Compliance with any other information requested to be attached to Returnable Schedule Form C1; and</p> <p>vi. In the event of a Joint Venture (JV), a project-specific consolidated (SANRAL project number indicated) valid B-BBEE verification certificate in the name of the JV, issued by a verification agency accredited by the South African National Accreditation System (SANAS) shall be submitted.</p> <p><b>Criteria for breaking deadlock</b></p> <p>If two or more tenders score the same number of points and these tenders are also the highest ranked tenders, the tender with the highest preference points will be recommended for award.</p> <p>If functionality is part of the evaluation process and two or more tenders score equal total points and equal preference points, the tender that scored the highest points for functionality will be recommended for award.</p> <p>If two or more tenders score the same number of financial points and preference points and these tenders are also the highest ranked tenders, the tenderer to be recommended for award will be decided by the drawing of lots</p>
<b>C.3.13</b>	<p><b>Acceptance of a tender offer</b></p> <p>The conditions stated in clauses C.3.13(a) to (f) of the Conditions of Tender as well as the following additional clauses C.3.13(g) to (l)" shall be applied as objective criteria in terms of section 2(1)(f) of the Preferential Procurement Policy Framework Act, 2000 and as compelling and justifiable reasons in terms of Conditions of Tender clause C.3.11:</p> <ul style="list-style-type: none"> <li>g) The tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;</li> <li>h) The tenderer has not abused the Employer's supply chain management system;</li> <li>i) The tenderer has not failed to perform on any previous contract and has not been given a written notice to this effect; and</li> <li>j) The tenderer is tax compliant. The recommended tenderer who becomes non-compliant, prior to award, shall be notified and must become compliant within seven (7) working days of the date of being notified. A recommended tenderer who remains non-compliant after the seven (7) working days of being notified, shall be declared non-responsive.</li> <li>k) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer. The licensed compensation insurer shall be approved by Department of Labour in terms of Section 80 of the Compensation for Injury and Disease Act, 1993 (Act No. 130 of 1993).</li> </ul>

	<p>i) Price negotiations.</p> <ol style="list-style-type: none"> <li>1. If the price offered by a tenderer scoring the highest points is not market related, the Organ of state may not award the tender to that tenderer.</li> <li>2. The Organs of state may – <ol style="list-style-type: none"> <li>i. Negotiate a market related price with the tender scoring the highest points or cancel the tender;</li> <li>ii. If the tenderer does not agree to a market related price, negotiate a market related price with the tenderer scoring the second highest points or cancel the tender;</li> <li>iii. If the tenderer scoring the second highest points does not agree to a market related price, negotiate a market related price with the tenderer scoring the third highest points or cancel the tender; If a market related price is not agreed as envisaged in paragraph 2(iii), the organ of state must cancel the tender.</li> </ol> </li> <li>3. If a market related price is not agreed as envisaged in paragraph 2(iii), the organ of state must cancel the tender.</li> </ol> <p>In addition to the requirements under paragraph (b) of the Conditions of Tender, in the event that a due diligence is performed as part of the tender evaluation, the due diligence report will be used to evaluate the tenderer’s ability to perform the contract as stated in paragraph (b) The due diligence will evaluate the overall risk associated with the tender. The due diligence will take into consideration the following:</p> <ol style="list-style-type: none"> <li>a) Assessment of financial statements to assess the financial position of the tenderer and its ability to obtain the necessary guarantees or insurances,</li> <li>b) Evaluation of managerial and technical ability and available resources in relation to the proposed tender,</li> <li>c) Integrity Risk Evaluation,</li> <li>d) Operations, Activities, Locations and Key Customers,</li> <li>e) Reference checks from previous clients, and</li> <li>f) Risk rating (i.e. High Risk, Medium to High risk, Medium risk or Low risk) of the tenderer.</li> </ol>
<b>C.3.16</b>	<p><b>Registration of the award</b></p> <p>SANRAL will notify unsuccessful tenderers when the tender process has been concluded. Any unsuccessful tenderer may request a debriefing in writing as specified in Clause C.3.19.</p>
C.3.17	<p><b>Provide copies of the contracts</b></p> <p>The number of paper copies of the signed contract to be provided by the Employer is one (1).</p>
C.3.18	<p><b>Provide written reasons for actions taken</b></p> <p>All requests shall be in writing.</p>
<b>ADDITIONAL CONDITIONS OF TENDER CLAUSES</b>	
C.3.19	<b>Jurisdiction</b>

	Unless stated otherwise in the tender data, each tenderer and the Employer undertake to accept the jurisdiction of the law courts of the Republic of South Africa.
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C.3.11	<p><b>The quality criteria, maximum score and scoring mechanism in respect of each of the criteria are as follows:</b></p> <p><b>A quality scoring is as follows:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #d9e1f2;">Technical Scoring</th> <th style="background-color: #d9e1f2;">Form</th> <th style="background-color: #d9e1f2;">Max Score</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Relevant Experience of the Tendering Entity</td> <td>D5.1 &amp; D5.2</td> <td style="text-align: center;">50.00</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Tendering Entity's QMS Credentials</td> <td>D14</td> <td style="text-align: center;">10.00</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Development of Key Previously Disadvantaged Individuals (PDI) Staff and New Entrant</td> <td>D14</td> <td style="text-align: center;">35.00</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Key Resources (CV's to be provided)</td> <td>D4 &amp; D14</td> <td style="text-align: center;">40.00</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Tendering Entity's Proposed Organisation and Staffing</td> <td>D3, D4 &amp; D14</td> <td style="text-align: center;">15.00</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Tendering Entity's Proposed Operations and Maintenance Plan</td> <td>D14</td> <td style="text-align: center;">90.00</td> </tr> <tr> <td style="text-align: center;">7</td> <td>Tendering Entity's Indicative Establishment Program</td> <td>D7.1 &amp; D14</td> <td style="text-align: center;">20.00</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total Score</td> <td style="text-align: center;">260.00</td> </tr> <tr> <td colspan="3" style="text-align: right;"><b>Score (Minimum = 75%)</b></td> <td style="text-align: center;"><b>195.00</b></td> </tr> </tbody> </table> <p><b>The minimum number of evaluation points for quality is not less than 75% or 195 points.</b></p> <p><b>The detailed scoring will be as follows:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; padding: 5px;"> <p>1. 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	<ul style="list-style-type: none"> <li>a) Similar Operations and Maintenance type, but not necessarily a toll project; •</li> <li>b) Multi-disciplinary by nature;</li> <li>c) Required the management of revenue streams;</li> <li>d) Included account hosting and / or management;</li> <li>e) Customer Services.</li> </ul>	
	<b>Scoring:</b>	
	i) No evidence of a similar project	0
	ii) Indicate evidence of a similar project(s), where project was a Major project, and the experience gained was in at least 2 of the areas listed above (highlighted)	20
	iii) Evidence of a similar project(s), where projects presented were either a Large project, or 3 Major projects, and the experience gained was in at least 3 of the areas listed above	30
	iv) Evidence of a similar project(s), where projects presented were either a Mega project, or 3 Major projects, and the experience gained was in at least 4 of the areas listed above	40
	v) Evidence of a similar project(s), where projects presented were at least 1 Mega project, and 1 Large project, and the experience gained was in all of the areas listed above	50
	<b>2. Tendering Entity's Quality Management System QMS Credentials</b>	<b>10</b>
	<b>Scoring:</b>	
	i) No evidence of QMS in place	0
	ii) Evidence of QMS based on ISO-9001	3
	iii) Evidence of QMS based on ISO-9001 but in process of certification	5
	iv) ISO-9001 certified QMS in place < 5 years	8
	v) ISO-9001 certified QMS in place > 5 years	10
	<b>3. Development of Previously Disadvantaged Individuals (PDI) Staff and New Entrant</b>	<b>35</b>
	<b>3.1 Participation of Key Previous Disadvantage Individual (PDI) Staff</b>	<b>15</b>
	<b>List of Key Resources:</b>	
	<ul style="list-style-type: none"> <li>a) Contracts Engineer (Contractor's Representative)</li> <li>b) Operations Manager</li> <li>c) Maintenance Manager</li> </ul>	
	Criteria (evidence of certificates of qualification plus CV and contacts of previous experience to be provided of qualification/previous experience)	
	<b>Scoring:</b>	
	i) Zero PDI Key Resource	0
	ii) One (1) PDI Key Resource	5
	iii) Two (2) PDI Key Resources	10

iv) Three (3) PDI Key Resources	15
<b>3.2 Development of Targeted Enterprise (New Entrant)</b>	<b>20</b>
<b>Scoring:</b>	
i) <i>The process to identify possible Targeted Enterprise (New Entrant)</i>	2
ii) <i>The proposed program how to develop the TE (New Entrant)</i>	2
iii) <i>The detail and the level of training required</i>	2
iv) <i>Risk transfer (less risk transfer higher the score)</i>	4
v) <i>Level of supervision and monitoring of the TE (New Entrant)</i>	2
vi) <i>The proposed period of TE *New Entrant) operating on their own (TE operating for ≥ 12 months maximum score)</i>	8
<b>4. Key Resources</b>	<b>40</b>
<b>4.1 Contractor's Representative</b>	<b>20</b>
<b>Minimum requirements and Scoring:</b>	
i) <i>A Professionally Registered (Pr Eng or Pr Tech) or Pr.CPM or other relevant Business Professional Registration;</i>	3
ii) <i>At least fifteen (15) years relevant experience;</i>	3
iii) <i>Contract Management experience;</i>	3
iv) <i>FIDIC Experience</i>	3
v) <i>Full time assigned to the Project and have experience in:</i>	
• <i>Business Management;</i>	1
• <i>Corporate Governance Management;</i>	1
• <i>Team Development and Management;</i>	1
• <i>Operations Management;</i>	1
• <i>Systems Integration Management;</i>	1
• <i>Maintenance (Systems and Facilities) Management;</i>	1
• <i>Dispute Resolution;</i>	1
• <i>Performance Management.</i>	1
<b>4.2 Operations Manager</b>	<b>10</b>
<b>Minimum requirements and Scoring:</b>	
i) <i>At least ten (10) years relevant experience;</i>	2
ii) <i>A suitable HR Management Qualification, or industry accepted alternate;</i>	1
iii) <i>Full time assigned to the Project with experience in:</i>	1
• <i>Contract Management;</i>	0.5
• <i>Operations Management;</i>	1
• <i>Team Development and Management;</i>	1
• <i>Customer Services Management;</i>	1
• <i>Revenue Management</i>	1
• <i>Performance Management;</i>	1

	<ul style="list-style-type: none"> <li>• <i>Maintenance (systems and / or facilities) Management;</i></li> </ul>	0.5
<b>4.3</b>	<b>Maintenance Manager</b>	<b>10</b>
<b>Minimum requirements and Scoring:</b>		
i)	At least ten (10) years' relevant experience.	2
ii)	Minimum qualification: National Diploma	1
iii)	Preferred qualification: Engineer	2
iv)	The resource should have experience in: <ul style="list-style-type: none"> <li>• <i>Project Management;</i></li> <li>• <i>Performance Management;</i></li> <li>• <i>Documentation Development (procurement)</i></li> <li>• <i>Procurement Processes;</i></li> <li>• <i>Facilities Maintenance;</i></li> <li>• <i>Network Designs and Maintenance;</i></li> <li>• <i>Device Maintenance Programmes;</i></li> <li>• <i>Maintenance Audit Reviews;</i></li> <li>• <i>Maintenance Trend Analysis</i></li> </ul>	1 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
<b>5.</b>	<b>Tendering Entity's Proposed Organisational and Staffing</b>	<b>15</b>
<b>Minimum Criteria:</b>		
	<ul style="list-style-type: none"> <li>• <i>Project organogram (proposed)</i></li> </ul>	
<b>Proposed Organogram, to include:</b>		
	<ul style="list-style-type: none"> <li>• <i>Key Resources - names</i></li> <li>• <i>Operations Departments</i></li> <li>• <i>Staff numbers per department per job category, including toll collectors, maintenance resources, etc</i></li> <li>• <i>In-house vs Outsourced</i></li> </ul>	
<b>Scoring:</b>		
	<ul style="list-style-type: none"> <li>• <i>All operations and maintenance functions indicated</i></li> <li>• <i>All operations and maintenance departments indicated</i></li> <li>• <i>Resources per function and / or department indicated and adequate</i></li> <li>• <i>In-house vs outsourced resources indicated</i></li> <li>• <i>Average salaries per staff category indicated (Section 197 staff)</i></li> <li>• <i>Toll collector numbers adequate to meet manning levels</i></li> </ul>	2 2 3 1 2 5
<b>6.</b>	<b>Tendering Entity's Proposed O&amp;M Plan</b>	<b>90</b>
<b>Criteria and Scoring:</b>		
<b>6.1</b>	<b>Understanding the Overall Operations Requirements</b>	<b>15</b>
i)	Role players	3
ii)	Traffic risk	3
iii)	Transaction risk	3

	iv) Interfaces	2
	v) Performance Management	2
	vi) Reporting	2
	<b>6.2 Understanding the National Interoperability Concept</b>	<b>15</b>
	i) The role of the national TCH	3
	ii) Dealing with Road Queries (point of presence, Call Centre, etc)	2
	iii) TCH interface management	2
	iv) Electronic transaction file transfer	2
	v) Account settlement	2
	vi) Road User mobility account registration	2
	vii) Tag management (procurement, distribution and stock control)	2
	<b>6.3 Establishment and mobilisation</b>	<b>10</b>
	i) Staff transfers (Section 197)	3
	ii) Staff procurement	1
	iii) Training	1
	iv) Sub-contractor procurement	1
	v) On-site establishment	1
	vi) Envisaged timelines and program	3
	<b>6.4 Financial Management (including that of revenue streams)</b>	<b>10</b>
	i) Understanding the financial management requirements	2
	ii) The proposed resource management plan (including all resource categories and numbers)	2
	iii) Cash management solutions	2
	iv) Reconciliations (Revenue vs Transactions)	2
	v) Banking services management	2
	<b>6.5 Traffic Management</b>	<b>5</b>
	i) Dealing with manning levels	3
	ii) Dealing with queues	1
	iii) Manual processing (no power, no system)	1
	<b>6.6 Maintenance management (Facilities, E&amp;M, etc)</b>	<b>10</b>
	i) Understanding the Maintenance Scope of Works	2
	ii) The approach to specialist maintenance, routine and ad-hoc maintenance	2
	iii) The proposed resource management plan (including all resource categories and numbers)	2
	iv) Fault reporting and responses	2
	v) Managing system touching equipment and spares availability risk (including Business Continuity Solutions)	1
	vi) Asset replacement and handback	1
	<b>6.7 System maintenance (1st line support)</b>	<b>10</b>
	i) Understanding the System Maintenance Scope of Works	2
	ii) Hardware and software support (in the context of the Contractor's scope)	2

	iii) Fault reporting and responses	2
	iv) The proposed resource management plan (including all resource categories and numbers)	2
	v) Managing toll system and spares availability risk (incl. Business Continuity solutions)	2
	<b>6.8 Performance Management</b>	<b>5</b>
	i) Performance monitoring / reporting / improvement	
	<b>6.9 Risk Management</b>	<b>2</b>
	i) Risk management plan	
	<b>6.10 Quality Assurance</b>	<b>2</b>
	i) QA Plan	
	<b>6.11 Environmental Management</b>	<b>2</b>
	i) Environmental Management plan	
	<b>6.12 Health and Safety</b>	<b>2</b>
	i) Health and Safety plan	
	<b>6.13 Security</b>	<b>2</b>
	i) Security plan	2
	7. Tendering Entity's Indicative Program	<b>20</b>
	<b>Criteria and Scoring:</b> - a good understanding of:	
	i) All establishment and mobilisation activities	10
	ii) The transitioning from the current Contractor	5
	iii) Staff take-over requirements and / or procurement requirements	5

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**PART T2:            RETURNABLE SCHEDULES**

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**PART T2:      RETURNABLE SCHEDULES**

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**PART T2.1: LIST OF RETURNABLE SCHEDULES**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer must complete the following returnable schedules:

**Notes to tenderer:**

1. Returnable schedules have been based on the CIDB Standard for Uniformity in Construction Procurement and incorporate National Treasury requirements within them. Returnable schedules are separated into the following categories:
  - a) Forms, certificates and schedules for completion by the tenderer for use in the quantitative and qualitative evaluation of the tender (Forms A to E)
  - b) A list of all returnable documents for completion by the tenderer (Form F1)
2. Failure to submit fully completed relevant returnable documents may render such a tender offer non-responsive.
3. Tenderers shall note that their signature appended to each returnable form represents a declaration that they vouch for the accuracy and correctness of the information provided.
4. Notwithstanding any check or audit conducted by or on behalf of the Employer, the information provided in the returnable documents is accepted in good faith and as justification for entering into a contract with a tenderer. If subsequently any information is found to be incorrect such discovery shall be taken as wilful misrepresentation by that tenderer to induce the contract. In such event:
  - a) The Employer shall inform the tenderer and give the tenderer an opportunity to make representations within 14 days as to why the tender submitted should not be disqualified and as to why the tenderer should not be restricted by the National Treasury from conducting any business with any organ of state for a period not exceeding ten (10) years;
  - b) If the Employer has already entered into a contract with the tenderer, the Employer has the discretionary right under FIDIC Particular Condition 15.2(g) to terminate the contract.
5. These forms must be completed in non-erasable ink and any alterations made prior to tender closure countersigned by an authorised signatory.



**PART T2.1: LIST OF RETURNABLE DOCUMENTS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

1. This form has been created as an aid to ensure a tenderer's compliance with the completion of the returnable forms and schedules and subsequent placement in the correct envelope.
2. The electronic format for the submissions of the relevant forms is indicated in the schedule below.

FORM NO/ SBD NO	ELEC- TRONIC FORMAT	FORM DESCRIPTION	INITIAL IF COM- PLETED	ENVE- LOPE
A1	PDF	CERTIFICATE OF CONFIRMATION THAT THE TENDERER READ THE PRESENTATION/VIEWED THE VIDEO	*1	TECHNICAL PROPOSAL (1 <sup>ST</sup> ENVELOPE)
A1.1	PDF	CERTIFICATE OF INTENTION TO SUBMIT A TENDER	*1	
A2.1	PDF	CERTIFICATE OF AUTHORITY FOR SIGNATORY	*1	
A2.2	PDF	DECLARATION OF TENDERER'S CURRENT STATUS OF ANY DEBT OUTSTANDING TO SANRAL	*1 & *2	
A2.3	PDF	CERTIFICATE OF SINGLE TENDER SUBMISSION	*1 & *2	
A2.4	PDF	CERTIFICATE OF FRONTING PRACTICES	*1 & *2	
A2.5	PDF	DECLARATION OF DOMESTIC PROMINENT INFLUENTIAL PERSONS, FOREIGN PROMINENT PUBLIC OFFICIALS AND FOREIGN INFLUENTIAL NATIONALS (DPIPS, FPPOS & FINS)	*1 & *2	
A2.6	PDF	CERTIFICATE OF PERMISSION TO CONDUCT DUE DILIGENCE INVESTIGATION	*1 & *2	
A3.1/SBD4	PDF	BIDDER'S DISCLOSURE	*1 & *2	
A3.2/SBD9	PDF	CERTIFICATE OF INDEPENDENT TENDER (REPEALED)	*1 & *2	
A3.3	PDF	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	*1 & *2F	
A3.4	PDF	REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE	*1 & *2	
A3.5	PDF	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS (SBD 6.2)	*1 & *2	
A3.6	MS EXCEL	LOCAL CONTENT DECLARATION: SUMMARY SCHEDULE (ANNEXURE C)	*1 & *2	
A4	PDF	SCHEDULE OF DEVIATIONS OR QUALIFICATIONS BY TENDER	*1 & *2	
A5	PDF	SCHEDULE OF ADDENDA TO TENDER DOCUMENTS	*1	
A6/SBD2	PDF	CERTIFICATES OF TAX COMPLIANCE	*1	
A7	PDF	CERTIFICATE OF INSURANCE COVER	*1	
A8	PDF	TENDERER'S REGISTERED FINANCIAL SERVICE PROVIDER LETTER AND BANK DETAILS	*1	
A9.1	PDF	SCHEDULE OF TENDERER'S LITIGATION HISTORY	*1	
A9.2	PDF	ENVIRONMENTAL, SOCIAL, HEALTH, AND SAFETY PERFORMANCE DECLARATION	*1	
A10	PDF	SCHEDULE OF CURRENT COMMITMENTS	*1	
A11	PDF	CERTIFICATE OF COMPLIANCE WITH COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 1993 (ACT NO. 130 OF 1993)	*1	
A12	PDF	JOINT VENTURE AGREEMENT	*1	
A13/SBD1	PDF	INVITATION TO BID AND TERMS AND CONDITIONS FOR BIDDING	*1 & *2	

FORM NO/ SBD NO	ELEC- TRONIC FORMAT	FORM DESCRIPTION	INITIAL IF COM- PLETED	ENVE- LOPE	
C1.1	PDF	TENDERER'S B-BBEE VERIFICATION CERTIFICATION	*1 & *2	TECHNICAL PROPOSAL (1 <sup>ST</sup> ENVELOPE)	
C1.2/SBD6.1	PDF	PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 (INCORPORATING SBD6.1)	*1 & *2		
D1	PDF	SCHEDULE OF TENDERER'S PLANT AND EQUIPMENT	*1		
D2	PDF	TENDERER'S METHOD STATEMENT	*1		
D3	PDF	TENDERER'S ORGANISATION AND STAFFING	*1		
D4.1	PDF	PERSONNEL RESOURCE DETAIL (CONTRACTOR'S REPRESENTATIVE) – KEY RESOURCE / KEY PDI	*1		
D4.2	PDF	PERSONNEL RESOURCE DETAIL (OPERATIONS MANAGER) – KEY RESOURCE / KEY PDI	*1 & *2		
D4.3	PDF	PERSONNEL RESOURCE DETAIL (MAINTENANCE MANAGER)– KEY RESOURCE / KEY PDI	1 & *2		
D4.4.1	PDF	PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 1) – KEY PDI	1 & *2		
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D4.4.3	PDF	PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 3) – KEY PDI	1 & *2		
D4.4.4	PDF	PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 4) – KEY PDI	1 & *2		
D4.4.5	PDF	PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 5) – KEY PDI	1 & *2		
D4.5	PDF	PERSONNEL RESOURCE DETAIL (OHS MANAGER/OFFICER)	1 & *2		
D5.1	PDF	TENDERER'S EXPERIENCE BASED ON COMPLETED PROJECTS	1 & *2		
D5.2	PDF	TENDERER'S EXPERIENCE BASED ON PROJECTS IN PROGRESS	1 & *2		
D6	PDF	AFFIDAVIT FOR PAST PERFORMANCE REPORTS ON COMPLETED PROJECTS	1 & *2		
D7.1	PDF	TENDERER'S INDICATIVE PROGRAM	1 & *2		
D7.2	PDF	PROPOSED ESTABLISHMENT PROGRAMME	1 & *2		
D9	PDF	NOMINATION OF COMPANY, MEMBER, SUBCONTRACTOR, ETC. FOR EACH DISCIPLINE	1 & *2		
D10	PDF	TECHNICAL INFORMATION	1 & *2		
D11	PDF	TOLL PLAZA UPGRADING SCHEDULES	1 & *2		
D12	PDF	ADDITIONAL INFORMATION	1 & *2		
D13	PDF	DISTRIBUTION OF RISK BETWEEN THE NSC AND THE MAIN CONTRACTOR AND ANY OTHER SUB-CONTRACTORS	1 & *2		
D14	PDF	TECHNICAL PROPOSAL	1 & *2		
D15	PDF	CORPORATE SOCIAL INVESTMENT	1 & *2		
E1	PDF	ELECTRICAL SCHEDULE OF MATERIALS	1 & *2		
F1	PDF	SCHEDULE OF TENDER COMPLIANCE	1 & *2		
C1.1.1/SBD7	PDF	FORM OF OFFER	*2		FINANCIAL PROPOSAL (2 <sup>ND</sup> ENVELOPE)
C1.5	PDF	CONTRACT DATA – INFORMATION PROVIDED BY THE TENDERER	*2		
C2.2/SBD3	MS EXCEL	PRICING SCHEDULE	*1 & *		
A3.5/SBD6.2	PDF	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS	*1 & *2		
A3.6	MS EXCEL	LOCAL CONTENT DECLARATION: SUMMARY SCHEDULE			
B1	PDF	CURRENCY EXCHANGE RATE FLUCTUATIONS	*1 & *2		

FORM NO/ SBD NO	ELEC- TRONIC FORMAT	FORM DESCRIPTION	INITIAL IF COM- PLETED	ENVE- LOPE
B2	PDF	CONTRACTOR'S ESTABLISHMENT ON SITE	*1 & *2	
D8	PDF	SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE	1 & *2	

NOTES:

\*1- SCHEDULES/DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

\*2- SCHEDULES/DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

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<b>FORM D10:</b>	<b>TECHNICAL INFORMATION</b>	<b>T-111</b>
<b>FORM D11:</b>	<b>TOLL PLAZA UPGRADING SCHEDULES</b>	<b>T-112</b>
<b>FORM D12:</b>	<b>ADDITIONAL INFORMATION</b>	<b>T-114</b>
<b>FORM D13:</b>	<b>DISTRIBUTION OF RISK BETWEEN THE MAIN CONTRACTOR AND THE NSC AND ANY OTHER SUBCONTRACTORS</b>	<b>T-115</b>
<b>FORM D14:</b>	<b>TECHNICAL PROPOSAL</b>	<b>T-135</b>
<b>FORM D15:</b>	<b>CORPORATE SOCIAL INVESTMENT</b>	<b>T-140</b>
<b>FORM E1:</b>	<b>ELECTRICAL SCHEDULE OF MATERIALS</b>	<b>T-141</b>
<b>FORM F1:</b>	<b>SCHEDULE OF TENDER COMPLIANCE</b>	<b>T-144</b>

**FORM A1: CERTIFICATE CONFIRMING THAT THE TENDERER READ THE PRESENTATION BRIEFING**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

This is to certify that I, .....

.....

representative of (tenderer) .....

of (address).....

.....

.....

telephone number .....

fax number .....

e-mail .....

read the clarification presentation presented by the Employer online.

TENDE'ER'S REPRESENTATIVE (Signature) .....

**FORM A1.1: CERTIFICATE OF INTENTION TO SUBMIT A TENDER**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to Tenderer:**

1. The duly completed certificate of intention to submit a tender must be submitted by whoever intends to tender for this particular tender by 08 March 2024. Failure to submit the certificate of intention to tender within the required period may render the tenderer non-responsive and SANRAL does not accept responsibility for any communication not received by the tenderer timeously.
2. Failure to submit this certificate would result in the tenderer not receiving addenda or additional issued information and may result in the tenderer being non-responsive if “any material amendment/s” contained in the addenda or additional information is not included in the tender offer/submission.
3. Late notification of intention to tender by a prospective tenderer will not necessarily result in the tender closing date being extended.
4. Should you intend to submit a tender for this particular tender please sign the certificate, scan and email the completed document to the email address indicated in T1.1 of this tender document.
5. The Employer shall send all correspondence, including Addenda, only to the Tenderer’s email address as provided herein; in addition, the Employer shall upload all correspondences on SANRAL website and National Treasury eTender Portal.

This is to certify that I, .....

representative of (insert name of tenderer) .....

of (address) .....

telephone number .....

fax number .....

e-mail .....

intends to submit a tender in response to the tender notice and invitation for tender this contract.

TENDE'ER'S REPRESENTATIVE ..... Date .....

(Signature)

**FORM A2.1: CERTIFICATE OF AUTHORITY FOR SIGNATORY**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The signatory for the tenderer shall confirm his/her authority thereto by attaching on the tendering company's letterhead a duly signed and dated copy of the relevant resolution of the board of directors/partners. Scan a copy of the resolution on Flash drive. .
2. In the event that the tenderer is a joint venture, a certificate is required from each member of the joint venture clearly setting out:
  - a) Authority for signatory,
  - b) Undertaking to formally enter into a joint venture contract should an award be made to the joint venture,
  - c) Name of designated lead member of the intended joint venture, as required by tender condition C2.13.4.
3. The resolution below is given as an example of an acceptable format for authorisation, but submission of this page with the example completed shall not be accepted as authorisation of the tenderer's signatory.

By resolution of the board of directors passed at a meeting held on .....

Mr/Ms. ....,

whose signature appears below, has been duly authorized to sign all documents in connection with the tender for

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

and any contract which may arise therefrom on behalf of *enter name of tenderer in block capitals*.

.....

SIGNED ON BEHALF OF THE COMPANY: .....

IN HIS/HER CAPACITY AS: .....

DATE: .....

SIGNATURE OF SIGNATORY: .....

**WITNESS 1:**

SIGNATURE: ..... NAME (IN CAPITALS) .....

**WITNESS 2:**

SIGNATURE: ..... NAME (IN CAPITALS): .....



**FORM A2.2: DECLARATION OF TENDERER'S CURRENT STATUS OF ANY DEBT OUTSTANDING TO SANRAL**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The signatory for the tenderer shall complete and sign this form declaring the current status of any debt outstanding to SANRAL.
2. In the event that the tenderer is a Joint Venture, a declaration is required from each member of the Joint Venture.

I, the undersigned ..... declare that:

the tenderer or any of its Directors/Members do not have any debt outstanding to SANRAL, other than what is listed below:

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

the tenderer and/or any of its Directors/Members freely, voluntarily and without undue duress unconditionally authorizes the SANRAL to set off any debts agreed to which is due and payable by the tenderer or any of its Directors/Members in terms of this declaration against any moneys due to the tenderer or any of its Directors/Members; and

to the best of my knowledge the above information is true and accurate.

SIGNATURE: .....

Signed and sworn before me at ..... on the ..... day of ..... 20.....

The deponent having:

1. acknowledged that he/she knows and understands the contents hereof;
2. confirmed that he/she has no objection to the taking of the prescribed oath;
3. confirmed that he/she considered the prescribed oath as binding upon his/her conscience; and
4. confirmed that the Regulations contained in the Government Gazette Notice R1258 of July 1972 and R1648 of August 1977 have been complied with.

.....  
**COMMISSIONER OF OATHS**

**FORM A2.3: CERTIFICATE OF SINGLE TENDER SUBMISSION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. This certificate serves as a declaration by the tenderer that a single tender was submitted.
- 2. In the case of a Joint Venture (JV) or a Targeted Enterprise, a separate certificate is to be completed and submitted by each JV member or Targeted Enterprise.

**DECLARATION**

I, the undersigned, ..... in submitting the accompanying tender on behalf of the tenderer do hereby make the following statements that I certify to be true and complete in every respect:

- 1. I have read and understand the notes to, and the contents of, this certificate.
- 2. I understand that the accompanying tender and any other tender shall be disqualified in the event that I, including a Joint Venture partner or a Targeted Enterprise, participate in more than 1 (one) tender.

SIGNATURE: .....

DATE: .....

NAME: .....

POSITION: .....

**FORM A2.4: CERTIFICATE OF FRONTING PRACTICES**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Fronting Practices**

**Window-dressing:** This includes cases in which black people are appointed or introduced to an enterprise on the basis of tokenism and may be:

1. Discouraged or inhibited from substantially participating in the core activities of an enterprise; and
2. Discouraged or inhibited from substantially participating in the stated areas and/or levels of their participation;

**Benefit Diversion:** This includes initiatives implemented where the economic benefits received as a result of the B-BBEE Status of an enterprise do not flow to black people in the ratio as specified in the relevant legal documentation.

**Opportunistic Intermediaries:** This includes enterprises that have concluded agreements with other enterprises with a view to leveraging the opportunistic intermediary's favourable B-BBEE status in circumstances where the agreement involves:

1. Significant limitations or restrictions upon the identity of the opportunistic intermediary's suppliers, service providers, clients or customers;
2. The maintenance of their business operations in a context reasonably considered improbable having regard to resources; and
3. Terms and conditions that are not negotiated at arms-length on a fair and reasonable basis.

**Responsibility to Report Fronting**

**In order to effectively deal with the scourge of Fronting, verification agencies, and/or procurement officers and relevant decision makers are encouraged to obtain a signed declaration from the clients or entities that they verify or provide business opportunities to, which states that the client or entity understands and accepts that the verification agency, procurement officer or relevant decision maker may report fronting practices to the Department of Trade, Industry and Competition. Intentional misrepresentation by measured entities may constitute fraudulent practices, public officials and verification agencies are to report such cases to the Department of Trade, Industry and Competition.**

**SANRAL or its appointed agent has every right to embark on an investigation of fronting with regards to any potential service provider. In this regard, SANRAL is entitled to request any further information, interview and any documentation from the respective potential service provider prior to any award. (This statement is for internal use)**

**Fronting Indicators**

<ul style="list-style-type: none"><li>• The black people identified by an enterprise as its shareholders, executives or management are unaware or uncertain of their role within an enterprise;</li></ul>
<ul style="list-style-type: none"><li>• The black people identified by an enterprise as its shareholders, executives or management have roles of responsibility that differ significantly from those of their non-black peers;</li></ul>
<ul style="list-style-type: none"><li>• The black people who serve in executive or management positions in an enterprise are paid significantly lower than the market norm, unless all executives or management of an enterprise are paid at a similar level;</li></ul>
<ul style="list-style-type: none"><li>• There is no significant indication of active participation by black people identified as top management at strategic decision-making level;</li></ul>

<ul style="list-style-type: none"> <li>• An enterprise only conducts peripheral functions and does not perform the core functions reasonably expected of other, similar, enterprises;</li> </ul>
<ul style="list-style-type: none"> <li>• An enterprise relies on a third-party to conduct most core functions normally conducted by enterprises similar to it;</li> </ul>
<ul style="list-style-type: none"> <li>• An enterprise cannot operate independently without a third-party, because of contractual obligations or the lack of technical or operational competence;</li> </ul>
<ul style="list-style-type: none"> <li>• The enterprise displays evidence of circumvention or attempted circumvention;</li> </ul>
<ul style="list-style-type: none"> <li>• An enterprise buys goods or services at a significantly different rate than the market from a related person or shareholder;</li> </ul>
<ul style="list-style-type: none"> <li>• An enterprise obtains loans, not linked to the good faith share purchases or enterprise development initiatives, from a related person at an excessive rate; and</li> </ul>
<ul style="list-style-type: none"> <li>• An enterprise shares all premises and infrastructure with a related person, or with a shareholder with no B-BBEE status or a third-party operating in the same industry where the cost of such premises and infrastructure is disproportionate to market-related costs.</li> </ul>

**DECLARATION**

I, ..... the undersigned, in submitting the accompanying tender on behalf of the tenderer do hereby make the following statements that I certify to be true and complete in every respect:

1. I have read and understand the contents of this certificate.
2. I accept that the Employer may report fronting practices to the Department of Trade, Industry and Competition and the BBBEE commissioner.
3. I accept that intentional misrepresentation by measured entities may constitute fraudulent practices that shall be reported to the Department of Trade, Industry and Competition and the BBBEE commissioner.

SIGNATURE: .....

DATE: .....

NAME: .....

POSITION: .....

**FORM A2.5: DECLARATION OF DOMESTIC PROMINENT INFLUENTIAL PERSONS, FOREIGN PROMINENT PUBLIC OFFICIALS AND FOREIGN INFLUENTIAL NATIONALS (DPIPs, FPPOs & FINs)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. In line with a policy on Domestic Prominent Influential Persons (DPIP's), Foreign Prominent Public Officials (FPPO's) & Foreign Influential Nationals (FIN's), the purpose of this declaration form is to ensure maintenance and monitoring of the business relationships with prominent, influential stakeholders who have domestic and/or foreign influence as far as the procurement under the management of SANRAL is concerned. This is done to mitigate SANRAL's perceived association, reputational, operational or legal risk, as it strives to foster and maintain fair and transparent business relations. (The policy is available on SANRAL website: [www.nra.co.za](http://www.nra.co.za))**
- 2. It is compulsory that all prospective and existing bidders conducting business with SANRAL, who potentially meet the definition of DPIPs, FPPOs or FINs, complete this form by supplying credible information as required and submit together with their bid document.**
- 3. Bidders are required at the tender stage to declare any DPIPs, FPPOs or FINs involved in their bids, as part of their submission.**
- 4. Further, that bidders shall at the tender stage furnish SANRAL of all information relating to namely, shareholders names, ID numbers and share certificates of the individual and/or transaction concerned using, the form below, for verification purposes, including where applicable, confirmation as it relates to:**
  - 4.1. Knowledge of any offence within the meaning of Chapter 2 section 12 & 13 of Prevention and Combating of Corrupt Practices Act no 4 of 2006; and or**
  - 4.2. Knowledge of any offence within the meaning of chapter 3 of Prevention of Organised Crime Act no. 121 of 1998 as it relates to any of the shareholders, Directors, Owners and/or individual link to the bidder.**
- 5. Bidders undertake that should it be discovered that the information provided in the form below, is fraudulently or negligently misrepresented then Chapter 9 sec 214 & 216 of Companies Act no 17 of 2008 shall apply to shareholders, Directors, Owners and/or individual link to the bidder.**
- 6. Should the bidder fail to declare or supply SANRAL with credible information in the prescribed form, the bid may be rendered invalid.**
- 7. Should the SANRAL, in the process of conducting verification and investigation of information supplied by the bidder find out that the information poses a reputational risk, the bid shall be rendered invalid.**
- 8. The following definitions shall apply:**
  - 8.1. "Board" means the Board of Directors or the Accounting Authority of SANRAL**
  - 8.2. "Business relationship" means the connection formed between SANRAL and external stakeholders for commercial purposes.**
  - 8.3. "DD" means Due Diligence which is defined for this form as:**
    - a. the verification of disclosures in the disclosure form, including if the disclosure is "none"; and**
    - b. further investigation if any areas of risk are identified from publicly available information.**
  - 8.4. "Domestic Prominent Influential Person" means an individual who holds an influential position, including in an acting position for a period exceeding six months, or has held at any time in the preceding twelve months, in the Republic, as defined in the Financial Intelligence Centre Amendment Act (No.1 of 2017).**
  - 8.5. "DPIP" means a Domestic Prominent Influential Person.**
  - 8.6. "Family members and known close associates" means immediate family members and known close associates of a person in a foreign or domestic prominent position, as the case may be, as defined in the Financial Intelligence Amendment Act, No.1 of 2017).**

- 8.7. “Foreign Influential National” means an individual who is not a South African citizen or does not have a permanent residence permit issued in terms of the Immigration Act (No.13 of 2002), who possesses personal power that induces another person to give consideration or to act on any basis other than the merits of the matter.
- 8.8. “Foreign Prominent Public Official” means (as defined in the Financial Intelligence Centre Amendment Act (No.1 of 2017) an individual who holds, or has held at any time in the preceding twelve months, in any foreign country a prominent public function.
- 8.9. “FPPO” means a Foreign Prominent Public Official.
- 8.10. “Improper influence” means personal power that induces another person to give consideration or to act on any basis other than the merits of the matter.
- 8.11. “PIP” means Prominent Influential Person and includes DPIIP, FPPO and FIN
- 8.12. “SANRAL” means the South African National Roads Agency SOC Limited, with registration number 1998/009584/30.
- 8.13. “Senior Management” means the Executive Committee or its individual members.
9. A separate declaration is required from each PIP. In the event that the tenderer is a Joint Venture, a separate declaration from each PIP from each of the Joint Venture members, is required.

**Prominent Influential Persons (PIP’) Reporting Form.**

IDENTIFICATION PARTICULARS				
Primary Particulars	First Name	Surname	Middle Name	ID/Passport Number
Country Details	Country of Origin		Citizenship	Current Country of Residence
CURRENT STATUS AND BACKGROUND				
Current Occupation	Occupational Title		Status	
			Active	Non-active
Is the potential/business partner (mark with an “X” whichever is applicable):				
a DPIIP	a FPPO	a FIN	Family member or Close Associate of a DPIIP/FPPO/FIN?	
KNOWN BUSINESS INTERESTS				
No	Name of Entity	Role in Entity	Status	
1			Active	Non-active
2				
3				
4				
5				
6				

7				
8				

<b>MEDIA REPORTS / OTHER SOURCES OF INFORMATION</b>	
(Please reference all known negative or damaging media reports associated with the DPIIP/FPPO/FIN)	

**Reporting Person/s:**

Full names:		
Designation:		
Department:		
Head of Department:		
Head of Department's signature:	Date:	
Reporting Person's signature:	Date:	

I, the undersigned, ..... declare that:

1. the information furnished on this declaration form is true and correct, and
2. I accept that any action may be taken against me should this declaration prove to be false.

SIGNATURE:

NAME: .....

POSITION: .....

DATE: .....

NAME OF TENDERER: .....

**FORM A2.6: CERTIFICATE OF PERMISSION TO CONDUCT DUE DILIGENCE INVESTIGATION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. The tenderer shall complete the declaration below.**
- 2. In the case of a Joint Venture (JV), each member of the JV shall comply with the above requirements.**

**DECLARATION**

I, ..... (name)  
the undersigned in my capacity as ..... (position)  
on behalf of ..... (name of company),  
herewith grant consent that SANRAL or any of their appointed Service Providers may conduct a due diligence  
investigation on ..... (name of company)  
to evaluate our ability to perform the contract as stipulated in the Standard Conditions of Tender, Clause  
C.3.13(b).

In addition, any information in this regard requested by SANRAL or any of their appointed Service Providers,  
shall be submitted within the timelines of the request.

SIGNATURE: .....

DATE: .....

NAME: .....

POSITION: .....



**FORM A3.1: BIDDER'S DISCLOSURE (SBD4)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

Notes to tenderer:

1. Definitions:

1.1. "State" means:

- i) any National or Provincial Department, National or Provincial Public Entity or Constitutional Institution within the meaning of the Public Finance Management Act, 1999 (Act No 1 of 1999);
- ii) any Municipality of Municipal Entity;
- iii) Provincial Legislature;
- iv) National Assembly or the National Council of Provinces; or
- v) Parliament.
- vi) "Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

1.2. "Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

- 2. In the case of a joint venture (JV), a separate declaration form is to be completed and submitted by each JV member.
- 3. If the Form is omitted or blank; or if the tenderer found to have failed to declare conflict or declare false information, The tender will be declared non-responsive and should it be discovered after the award of a contract, contract maybe terminated and tenderer will be ultimately blacklisted.

---

**PURPOSE OF THE FORM**

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

**BIDDER'S DECLARATION**

Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest<sup>1</sup> in the enterprise, employed by the state?

**YES/NO**

If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

---

<sup>1</sup> the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

Full Name	Identity Number	Name of State institution

Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution?

**YES/NO**

If so, furnish particulars:

.....  
 .....

Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract?

**YES/NO**

If so, furnish particulars:

.....  
 .....

**DECLARATION**

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

I have read and I understand the contents of this disclosure;  
 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium<sup>2</sup> will not be construed as collusive bidding.

In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the

<sup>2</sup> Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

**I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.**

**I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.**

.....  
Signature Date

.....  
Position Name of bidder

**FORM A3.2: CERTIFICATE OF INDEPENDENT TENDER (INCORPORATING SBD9) (REPEALED)**  
**CONTRACT SANRAL N.017-024-2019/1**  
**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

FORM REPEALED

**FORM A3.3: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

Notes to tenderer:

1. This declaration:
  - a) must form part of all tenders submitted.
  - b) in the case of a joint venture (JV), must be completed and submitted by each member of the JV
2. This form serves as a declaration to be used by institutions in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse and/or misused the State's procurement of the supply chain management system.
3. The tender of any tenderer may be disregarded if that tenderer or any of its directors have –
  - a) abused the institution's supply chain management system;
  - b) committed fraud or any other improper conduct in relation to such State system and/or;
  - c) has been charged with fraud, corruption or any other improper conduct whether of a criminal or civil nature during the course and scope of rendering services to the state or any other party and/or entity; or
  - d) failed to perform on any previous contract with the State.
4. In order to give effect to the above, the following questionnaire must be completed and submitted with this tender.

4.1	Is the tenderer or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?  <b>Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/ Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied.</b>  The Database of Restricted Suppliers now resides on the National Treasury website ( <a href="http://www.treasury.gov.za">www.treasury.gov.za</a> ) and can be accessed by clicking on its link at the bottom of the home page.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If Yes, furnish particulars:		
4.2	Is the tenderer or any of its directors listed on the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combatting of Corrupt Activities Act (No. 12 of 2004)?  <b>The Register for Tender Defaulters can be accessed on the National Treasury website ((<a href="http://www.treasury.gov.za">www.treasury.gov.za</a>) by clicking on its link at the bottom of the home page.</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If Yes, furnish particulars:		
4.3	Was the tenderer or any of its directors convicted by a court of law (including a court outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

4.3.1	If Yes, furnish particulars:		
4.4	Was any contract between the tenderer and any organ of State terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If Yes, furnish particulars:		

**CERTIFICATION**

I, the undersigned, .....  
certify that the information furnished on this declaration form is true and correct.

I accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

Signature: .....

Name: .....

Position: .....

Date: .....

Name of tenderer: .....

**FORM A3.4: REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall provide a pdf. copy of the supplier registration form from National Treasury Central Supplier Database (www.treasury.gov.za). Tenderers who are not registered on the Central Supplier Database at tender closure will be declared non-responsive (refer to Tender Data, Clause C.2.1.1). In the case of a Joint Venture or a Targeted Enterprise, a pdf. supplier registration form must be provided for each member of the Joint Venture or Targeted Enterprise.

NAME OF CONTRACTOR: .....

CENTRAL SUPPLIER DATABASE SUPPLIER NUMBER: .....

SUPPLIER COMMODITY: .....

DELIVERY LOCATION: .....

SIGNED BY TENDERER: .....

SIGNED BY TENDERER: .....

**FORM A3.5: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS (SBD 6.2)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

Before completing this declaration, bidders must study the General Conditions, Definitions, in the South African Bureau of Standards (SABS) approved technical specification number SANS 1286:2017 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

**1. General Conditions**

- 1.1. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SANS 1286:2017 as follows:

$$LC = [1 - x / y] * 100$$

Where:

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) on the date of advertisement of the bid as indicated in paragraph 3.1 below.

The SABS approved technical specification number SANS 1286:2017 is accessible on <http://www.thedtic.gov.za/wp-content/uploads/SANS-1286-2017.pdf> at no cost.

- 1.2. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule – Form A3.6) are not submitted as part of the bid documentation.
- 1.3. Only locally produced or locally manufactured Textiles, Clothing, Leather and Footwear from local raw material or input, with a minimum threshold for local production and content of 100% will be considered.
2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SANS 1286:2017) for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
<b>Electrical cable material products</b>	
Low Voltage	90%
Low-Cost Reticulation	90%
Medium & High Voltage	90%
ACR	90%
<b>Telecom cable material products</b>	
Optical Fibre Cables	90%
Copper Telecom Cables	90%
<b>Plastic Pipes</b>	
Polyvinyl chloride (PVC) pipes	100%
High density Polyethylene (HDPE) pipes	100%



Polypropylene (PP) pipes	100%
Glass Reinforced Plastic (GRP) pipes	100%
<b>Textiles, Clothing, Leather and Footwear</b>	
Only locally produced or locally manufactured textiles, clothing, leather and footwear from local raw material or input	100%

3. Does any portion of the services or goods offered have any imported content?

<b>YES</b>		<b>NO</b>		<i>Tick applicable box</i>
------------	--	-----------	--	----------------------------

3.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.1 of the general conditions must be the rate(s) published by SARB for the specific currency on the date of advertisement of the bid or when the forms are completed during the Design-Build Period.

The relevant rates of exchange information are accessible on <https://www.resbank.co.za>.

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SANS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

**NB: Bidders must submit proof of the SARB rate(s) of exchange used.**

4. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the DTI must be informed accordingly in order for the DTI to verify and in consultation with the AO/AA provide directives in this regard.

**LOCAL CONTENT DECLARATION**  
**(REFER TO ANNEX B OF SANS 1286:2017)**

**LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)**

**IN RESPECT OF BID NO.: CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

ISSUED BY: THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED (the Procurement Authority / Institution):

N.B.:

1. The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
2. Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thedtic.gov.za/sectors-and-services-2/industrial-development/industrial-procurement/?hilite=%27local%27%2C%27content%27%2C%27declaration%27>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned ..... (full names),

do hereby declare, in my capacity as .....

of ..... (name of bidder entity)

the following:

- a) The facts contained herein are within my own personal knowledge.
- b) I have satisfied myself that the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SANS 1286:2017; and
- c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SANS 1286:2017, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declarations D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SANS 1286:2017	R
Stipulated minimum threshold for local content (paragraph 2 above)	.....%
Local content %, as calculated in terms of SANS 1286:2017	.....%

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentage for each product has been calculated using the formula given in clause 3 of SANS 1286:2017, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declarations D and E.

- d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SANS 1286:2017.

SIGNATURE: .....

DATE: .....

**WITNESS 1:**

SIGNATURE: ..... NAME (IN CAPITALS): .....

**WITNESS 2:**

SIGNATURE: ..... NAME (IN CAPITALS): .....

**Applicable in Design  
Build Period**

**FORM A3.6: LOCAL CONTENT DECLARATION: SUMMARY SCHEDULE (ANNEXURE C)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

C1	Tender No.:									<b>Note: VAT to be excluded from all calculations</b>
C2	Tender Description:									
C3	Designated Product(s):									
C4	Tender Authority:									
C5	Tendering Entity Name:									
C6	Tender Exchange Rate:	Pula	P	EU	€	GBP	£			

Tender Item No.'s	List of Items	Calculation of Local Content						Tender Summary			
		Tender Price Each (Excl. VAT)	Exempted Imported Value	Tender Value Net of Exempted Imported Content	Imported Value	Local Value	Local Content % (Per Item)	Tender Qty	Total Tender Value	Total Exempted Imported Content	Total Imported Content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
<i>(C8) (Note to compiler: - list all designated item/product numbers of all items applicable to this tender from the BoQ * Only designated items/products that will be built into the permanent Works must be listed in C8. * Any designated items/products</i>	<i>(C9) (Note to compiler: - list all designated items/products applicable to this tender from the BoQ * Only designated items/products that will be built into the pe* Any designated items/products that will be incorporated in the Works that</i>										

Not Applicable in Design Build Period

<p><u>that will be incorporated in the Works that is not designed up-front should not be specified in C8 at tender stage; and can only be quantified after design.</u></p> <p><u>* Any designated items/products that will form part of temporary works (e.g. site office, temporary road signs) should not be included in C8).</u></p>	<p><u>is not designed up-front should not be specified in C9 at tender stage; and can only be quantified after design.</u></p> <p><u>* Any designated items/products that will form part of temporary works (e.g. site office, temporary road signs) should not be included in C9.</u></p>										
---	--	--	--	--	--	--	--	--	--	--	--

(C20) Total Tender Value	R	
(C21) Total Exempt Imported Content	R	
(C22) Total Tender value net of exempt imported content	R	
(C23) Total Imported Content	R	
(C24) Total Local Content	R	
(C25) Average Local Content % of tender	...%	

**Applicable in Design and Build Period**

Signature of tenderer from Annex B (SANS 1286:2017): .....

Date: .....

**ANNEXURE D: IMPORTED CONTENT DECLARATION - SUPPORTING SCHEDULE TO ANNEXURE C**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

(D1)	Tender No.:										
(D2)	Tender Description:										
(D3)	Designated Product(s):										
(D4)	Tender Authority:										
(D5)	Tendering Entity Name:										
(D6)	Tender Exchange Rate:	Pula	P	EU	€	GBP	£				

Note: VAT to be excluded from all calculations

A. Exempted imported content				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl. VAT	Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)
										(D19) Total exempt imported value	R0
<b>This total must correspond with Annex C - C 21</b>											

B. Imported directly by the Tenderer				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl. VAT	Tender Qty	Exempted imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
										(D45) Total imported value by 3rd party	R0

Signature of tenderer from Annex B (SANS 1286:2017): .....

Date: .....

**C. Imported by a 3rd party and supplied to the Tenderer**

C. Imported by a 3rd party and supplied to the Tenderer				Calculation of imported content						Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl. VAT	Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
(D45) Total imported value by 3rd party											R 0

**D. Other foreign currency payments**

D. Other foreign currency payments					Calculation of foreign currency payments		Summary of payments	
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange			Local value of payments	
(D46)	(D47)	(D48)	(D49)	(D50)			(D51)	
(D52) Total of foreign currency payments declared by tenderer and/or 3rd party								R 0

Signature of tenderer from Annexure B:  
(SANS 1286.2017)

\_\_\_\_\_

(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above

R 0

This total must correspond with Annex C - C 23

Date:

Applicable in Design  
 Build Period

**ANNEXURE E: IMPORTED CONTENT DECLARATION - SUPPORTING SCHEDULE TO ANNEXURE C**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

(E1)	Tender No.:		Note: VAT to be excluded from all calculations
(E2)	Tender Description:		
(E3)	Designated Product(s):		
(E4)	Tender Authority:		
(E5)	Tendering Entity Name:		

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
	<b>(E9) Total local products (Goods, Services and Works)</b>		R 0
(E10)	<b>Manpower costs</b>	(Tenderer's manpower cost)	R 0
(E11)	<b>Factory overheads</b>	(Rental, depreciation & amortisation, utility costs, consumables etc.)	R 0
(E12)	<b>Administration overheads and mark-up</b>	(Marketing, insurance, financing, interest etc.)	R 0
	<b>(E13) Total local content</b>		R 0
<b>This total must correspond with Annex C - C24</b>			

Signature of tenderer from Annexure B:  
(SANS 1286.2017)

\_\_\_\_\_

Date:

\_\_\_\_\_



**FORM A4: SCHEDULE OF DEVIATIONS OR QUALIFICATIONS BY TENDERER**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. The postulated tender MUST be priced.**
- 2. When submitting any alternative tender, condition of clause C.2.12 of Tender Data, shall be followed.**

Page	Description

SIGNED BY TENDERER: .....

**FORM A5: SCHEDULE OF ADDENDA TO TENDER DOCUMENTS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

**If an addendum containing material amendments is not incorporated by the tenderer in his tender offer, the tender will be declared non-responsive.**

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:		
	<b>Date</b>	<b>Title or Details</b>
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

SIGNED BY TENDERER: .....

**FORM A6: CERTIFICATE OF TAX COMPLIANCE (INCORPORATING SBD2)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall complete the declaration below.

I, ..... (name)

the undersigned in my capacity as ..... (position)

on behalf of ..... (name of company)

herewith grant consent that SARS may disclose to the South African National Roads Agency SOC Limited (SANRAL) our tax compliance status. For this purpose, our unique security personal identification number (PIN) is .....our tax reference number is .....

and our tax clearance certificate number is .....

In the event of a joint venture, each member shall comply with the above requirement.

SIGNED BY TENDERER: .....

**FORM A7: CERTIFICATE OF INSURANCE COVER**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to tenderer:**

**In the event of the tenderer being a joint venture/consortium, the details of the individual members must also be provided.**

The tenderer shall provide the following details of this insurance cover:

1. Name of Tenderer: .....
2. Period of Validity: .....
3. Value of Insurance: .....
  - Insurance for Works and Contractor's Equipment  
Company: .....  
Value: .....
  - Insurance for Contractor's Personnel  
Company: .....  
Value: .....
  - General public liability  
Company: .....  
Value: .....
  - SASRIA  
Company: .....  
Value: .....

SIGNED BY TENDERER: .....

**FORM A8: TENDERER'S REGISTERED FINANCIAL SERVICE PROVIDER LETTER AND BANK DETAILS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The tenderer shall attach to this form a letter (dated less than 3 months prior to the tender closing date) from a Registered Financial Service Provider (registered with the FSB) confirming his account and confirms the Tenderer's available capital and that the Tenderer has the financial means net of current commitments (independent of any contractual advance payment) available to meet the construction cash flow requirements estimated for the subject contract or a written confirmation from any registered financial institution or the tenderer's independent registered accountant should be requested to submit confirmation of the available working capital to meet the construction workflow requirements estimated for the subject contract. The confirmation by an independent registered accountant must indicate that the review, to be conducted in terms of ISRS4400, was done in terms of the Section 30 and Regulation 29 of the Companies Act No. 71 of 2008.
2. Failure to provide the required letter with the tender submission may render the tenderer's offer non-responsive in terms of tender condition C.3.8. Failure to provide the required letter with the tender submission may render the tenderer's offer non-responsive in terms of tender condition C.3.8.
3. In the event that the tenderer is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form.
4. In the event that the Employer at its sole discretion is not satisfied with the financial capability of the tenderer as a result of whatsoever nature and reason, the Employer reserves the right to invoke the provisions under tender data C.3.13. In addition, the Employer reserve the right to perform a full risk assessment as per tender data C.3.13. Furthermore, if the aforementioned occur, any and all report/s will be used to evaluate the Tenderer's ability to perform the contract as stated in sub-clause C3.13.(b) of the CIDB Standard for Uniformity.
5. The letter shall contain the information as indicated below.
6. The successful Tenderer may be requested to demonstrate its financial capability to execute the contract prior to award at SANRAL's discretion.
7. If the tenderer does not have financial resources, the tender will be declared non-responsive.

DATE

Bank Name

FSB Number

Bank Address

(Letter to be on the Financial Service Provider's letter head)

**RE: ACCOUNT CONDUCT AND CASHFLOW CONFIRMATION**

To Whom It May Concern:

We hereby confirm that Tenderer Name has been banking with xxxx bank for a period of xxx years and the account has been conducted in a satisfactory manner. Tenderer Name has the financial means, net of current commitments available to meet the construction cash flow requirements to the value of xxxxx for contract (insert contract number).

Name of Account Holder: .....

Account Number: .....

Bank name: .....

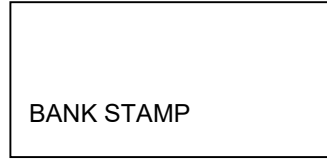
Branch Number: .....

Bank and branch contact details: .....

Yours Sincerely,

Name \_\_\_\_\_

Signature \_\_\_\_\_



**FORM A9.1: SCHEDULE OF TENDERER'S LITIGATION HISTORY**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to tenderer:**

The tenderer shall list below details of any litigation with which the tenderer (including its directors, shareholders or other senior members in previous companies) has been involved with any organ of state or state department within the last ten years. The details must include the year, the litigating parties, the subject matter of the dispute, the value of any award or estimated award if the litigation is current and in whose favour the award, if any, was made.

<b>Employer</b>	<b>Other litigating party</b>	<b>Dispute</b>	<b>Award value</b>	<b>Date resolved</b>

SIGNED BY TENDERER: .....

**FORM A9.2: ENVIRONMENTAL, SOCIAL, HEALTH, AND SAFETY PERFORMANCE DECLARATION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The tenderer (and in the case of a Joint Venture, each member of the Joint Venture) shall indicate below by marking with an “X” if suspension or termination of a contract occurred or not, and/or if the performance security has been called or not, related to Environmental, Social, Health or Safety (ESHS) performance, in the past five (5) years prior to the tender submission date.
2. In the event that suspension or termination occurred and/or the performance security has been called, the tenderer shall complete the details of all the suspensions and terminations as well as the details of all performance securities called since the date indicated.

The Employer may use this information to seek further information or clarifications in carrying out its due diligence.

Environmental, Social, Health, and Safety Performance Declaration in accordance with clause 4.1.1 of the Tender Data.			
<input type="checkbox"/> <b>No suspension or termination of contract:</b> An employer has not suspended or terminated a contract and/or called the performance security for a contract for reasons related to Environmental, Social, Health, or Safety (ESHS) performance in the past five (5) years prior to the tender submission date.			
<input type="checkbox"/> <b>Declaration of suspension or termination of contract:</b> The following contract(s) has/have been suspended or terminated and/or Performance Security called by an employer(s) for reasons related to Environmental, Social, Health, or Safety (ESHS) performance in the past five (5) years prior to the tender submission date. Details are described below:			
Year	Suspended or terminated portion of contract	Contract Identification	Total Contract Amount
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	<i>[insert complete contract name, contract number, Name of Employer, Address of Employer, Reason(s) for suspension or termination]</i>	<i>[insert amount]</i>
Performance Security called by an employer(s) for reasons related to ESHS performance			
Year	Contract Identification		Total Contract Amount
<i>[insert year]</i>	<i>[insert complete contract name, contract number, Name of Employer, Address of Employer, Reason(s) for calling of performance security]</i>		<i>[insert amount]</i>

SIGNED BY TENDERER: .....



**FORM A10: SCHEDULE OF CURRENT COMMITMENTS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The tenderer shall list below all contracts currently in progress or awarded and about to commence and tenders for which offers have been submitted but awards not yet made.
2. In the event of a joint venture enterprise, details of all the members of the joint venture shall similarly be attached to this form.
3. The lists must be restricted to not more than 20 contracts and 20 tenders. If a tenderer's actual commitments or potential commitments are greater than 20 each, those listed should be in descending order of expected final contract value or sum tendered.

<b>Table 1: CONTRACTS AWARDED</b>				
<b>Employer</b>	<b>Project</b>	<b>Expected total value of contract (incl. VAT)</b>	<b>Duration (Months)</b>	<b>Expected completion date</b>

<b>Table 2: TENDERS NOT YET AWARDED</b>				
<b>Employer</b>	<b>Project</b>	<b>Sum Tendered (incl. VAT)</b>	<b>Tendered Duration (Months)</b>	<b>Expected commencement</b>

SIGNED BY TENDERER: .....

**FORM A11: CERTIFICATE OF COMPLIANCE WITH COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 1993 (ACT NO. 130 OF 1993)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. Discovery that the tenderer has failed to make proper disclosure may result in SANRAL terminating a contract that flows from this tender on the ground that it has been rendered invalid by the tenderer's misrepresentation.**
- 2. The tenderer shall attach to this Form evidence that he is registered and in good standing with the compensation fund or with a licensed compensation insurer who is approved by Department of Labour in terms of section 80 of the Compensation for Injury and Disease Act, 1993 (Act No. 130 of 1993).**
- 3. The tenderer is required to disclose, by also attaching documentary evidence to this form, all inspections, investigations and their outcomes conducted by the Department of Labour into the conduct of the tenderer at any time during the 36 months preceding the date of this tender.**
- 4. In the event of a Joint Venture each member of JV must comply with the above.**

**SIGNED BY TENDERER: .....**

**FORM A12: JOINT VENTURE AGREEMENT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to Tenderer:**

- 1. In the event of a Joint Venture, attach to this form a signed and properly completed Joint Venture Agreement.**

**FORM A13: FORM SBD1 – INVITATION TO BID AND TERMS AND CONDITIONS FOR BIDDING**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**PART A  
INVITATION TO BID**

<b>YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)</b>					
BID NUMBER:	SANRAL N.017-024-2019/1	CLOSING DATE:	12 APRIL 2024	CLOSING TIME:	11h00
DESCRIPTION	FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD				
<b>BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)</b>					
The South African National Roads Agency SOC Ltd 38 Ida Street Menlo Park Pretoria, 0081					
<b>BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO</b>			<b>TECHNICAL ENQUIRIES MAY BE DIRECTED TO:</b>		
CONTACT PERSON	Procurement Office		CONTACT PERSON	Procurement Office	
TELEPHONE NUMBER	N/A		TELEPHONE NUMBER	N/A	
FACSIMILE NUMBER	N/A		FACSIMILE NUMBER	NO CHANGE REQUIRED	
E-MAIL ADDRESS	procurementNR4@sanral.co.za		E-MAIL ADDRESS	procurementNR4@sanral.co.za	
<b>SUPPLIER INFORMATION</b>					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]	
<b>QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS</b>					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A BRANCH IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
<b>IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.</b>					

**PART B  
TERMS AND CONDITIONS FOR BIDDING**

<b>1. BID SUBMISSION:</b>
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. <b>ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.</b>
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. <b>THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).</b>
<b>2. TAX COMPLIANCE REQUIREMENTS</b>
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

**NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.**

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....  
(Proof of authority must be submitted, e.g. Company Resolution)

DATE: .....

**FORM B1: CURRENCY EXCHANGE RATE FLUCTUATIONS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to Tenderer:**

Tenderers should note that the Contract and the Contract Price are ZAR (Rand) denominated. The Employer shall however allow the tenderer, should it so elect, to indicate which parts of Plant and specialist foreign labour the tenderer wishes to price in foreign currency. Only Euro or USD will be allowed as foreign currencies. All the remaining items and all the other associated costs shall remain in ZAR and the tenderer shall complete the Schedule of Payments as such. All amounts paid pursuant to the Contract, will however be paid by the Employer to the Contractor in ZAR, with the foreign currency components being converted into ZAR by the Employer (at the rate quoted by the Employer's primary bankers at 10:00 seven (7) days prior to the last day for payment as contemplated in the FIDIC Conditions of Contract (Volume 1) as amended by the FIDIC Particular Conditions of Contract and the Special Provisions (Part C1)). For these purposes, the tenderer shall list below those items of Plant and Specialist Foreign Labour which it intends to price in Euro or USD. Under no circumstances may items which do not constitute Plant or Specialist Foreign Labour, be priced in Euro or USD and included in the items to be listed below.

For tender evaluation purposes only, the tenderer shall include those items of Plant (which are priced in Euro or USD) and which are listed below, in the Schedule of Payments/Cost Matrix in ZAR, by converting those items into ZAR at the applicable exchange rate, taken at 28 days prior to the closing date of the tender. The tenderer shall state the exchange rate used for each item in the table below.

The balance of the tendered amount (i.e. the non-Euro or non-USD based amount) in the Schedule of Payments/Cost Matrix shall be subject to Contract Price Adjustment as contemplated in Part C2: Pricing Data.

This aforementioned is however subject to the requirements of sub-clause 14.17 of the Particular Conditions of Contract (Part C1).

No	Payment Item reference in SoP	Item Description (Plant of Specialist Foreign labour only)	Direct Foreign Price	Tendered Amount in ZAR to be transferred to SoP	Exchange rate used (USD:ZAR)
	Tenderer to add Rows to table as needed				

SIGNED BY TENDERER: .....

**FORM B2: CONTRACTOR'S ESTABLISHMENT ON SITE**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to Tenderer:**

**If the tenderer should require additional compensation for his obligations under Volume 2 Book 2a and Volume 2 Book 7a (over and above the total tendered for series A-1000 and B-1001 a) and b) of the Schedule of Payments/Cost Matrix) by including such additional compensation in the tendered rates and/or lump sum of items in the pricing schedule, these items and the value of such additional compensation shall also be set out in a letter attached to this form.**

Should the combined, extended total tendered for:

- Series A-1000 and
- Series B-1001 a) and b)

exceed a maximum of 15% of the tender sum, the tenderer shall clearly set out his reasons for tendering in this manner in a letter attached to this page.

The relevant regional project engineer will duly consider these reasons but reserves the right to consider the tendered rates to be imbalanced and to deal with them in terms of Tender Data clause C.3.9 contained in this volume.

Total tendered for series A-1000 and B-1001 a) and b) of the Schedule of Payments/Cost Matrix expressed as a percentage of the tender sum (excluding VAT) ..... %

SIGNED BY TENDERER: .....

**FORM C1.1: TENDERER'S B-BBEE VERIFICATION CERTIFICATE**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The tenderer shall attach to this form a valid B-BBEE verification certificate issued in accordance with:
  - a) the revised Notice of Clarification published in Notice 444 of 2015 of Government Gazette No.38799 on 15 May 2015 by the Department of Trade, Industry and Competition; or
  - b) if the scorecard is issued after 1 December 2020, the amended Codes of Good Practice published in Notice 303 of 2019 of Government Gazette No. 42496 on 31 May 2019 by the Department of Trade, Industry and Competition; or
  - c) the amended Construction Sector Codes published in Notice 931 of 2017 of Government Gazette No. 41287 on 1 December 2017 by the Department of Trade, Industry and Competition; or
  - d) if Measured Entity operates in more than one sector or sub-sector, the scorecard for the sector or sub-sector in which the majority of its core activities (measured in terms of Annual Revenue) are located will be acceptable; or
  - e) the Information and Communication Technology (ICT) Sector Codes (Published in Notice 1387 of Government Gazette No. 40407 of 7 November 2016); or
  - f) the Financial Sector (Published in Notice 1325 of Government Gazette No. 41287 of 1 December 2017); or
  - g) The Integrated Transport Sector Codes (Published in Notice 1162 of Government Gazette No. 32511 of 21 August 2009).
2. The certificate shall:
  - a) have been issued by a verification agency accredited by the South African National Accreditation System (SANAS); or
  - b) be in the form of a sworn affidavit or a certificate issued by the Companies and Intellectual Property Commission in the case of an Exempted Micro Enterprise (EME) with a total annual revenue of less than R3 million if issued in accordance with the amended Construction Sector Codes published in Notice 931 of 2017 of Government Gazette No. 41287 on 1 December 2017 by the Department of Trade, Industry and Competition; and
  - c) be valid at the original advertised tender closing date; and
  - d) have a date of issue less than 12 (twelve) months prior to the tender closing date (see Tender Data C.2.15).
3. A valid BBBEE Certificates shall contain:
  - a) Name of enterprise as per enterprise registration documents issued by CIPC, and enterprise business address.
  - b) Value-Added Tax number, where applicable.
  - c) The B-BBEE Scorecard against which the certificate is issued, indicating all elements and scores achieved for each element. The actual score achieved must be linked to the total points as per the relevant Codes.
  - d) B-BBEE status with corresponding procurement recognition level.
  - e) The relevant Codes used to issue the B-BBEE verification certificate.
  - f) Date of issue and expiry (e.g. 9 June 2018 to 8 June 2019). Where a measured entity was subjected to a re-verification process, due to material change, the B-BBEE Verification Certificate must reflect the initial date of issue, date of re-issue and the initial date of expiry. Re-verification does not extend the lifespan of the B-BBEE Verification Certificate.
  - g) Financial period which was used to issue the B-BBEE Verification Certificate
4. A valid Sworn Affidavit shall contain:
  - a) Name/s of deponent as they appear in the identity document and the identity number.



- b) Designation of the deponent as either the director, owner or member must be indicated in order to know that person is duly authorised to depose of an affidavit.
  - c) Name of enterprise as per enterprise registration documents issued by the CIPC, where applicable, and enterprise business address.
  - d) Percentage black ownership, black female ownership and whether they fall within a designated group.
  - e) Indicate total revenue for the year under review and whether it is based on audited financial statements or management accounts.
  - f) Financial year-end as per the enterprise's registration documents, which was used to determine the total revenue. The valid format of the Financial Year-End is Day/Month/Year
  - g) B-BBEE status level. An enterprise can only have one status level.
  - h) Date deponent signed and date of Commissioner of Oath must be the same.
  - i) Commissioner of Oath cannot be an employee or ex officio of the enterprise because, a person cannot by law, commission a sworn affidavit in which they have an interest, and
5. In the event of a Joint Venture (JV), a project specific (SANRAL project number indicated) consolidated B-BBEE verification certificate in the name of the JV, shall be attached.
  6. The attached verification certificate and the associated assessment report shall comply with the requirements of Tender Data clause C.3.11.8 and shall identify:
    - a) The name and domicilium citandi et executandi of the tenderer.
    - b) The registration and VAT number of the tenderer.
    - c) The dates of granting of the B-BBEE score and the period of validity.
    - d) The expiry date of the verification certificate.
    - e) A unique identification number.
    - f) The standard and/or normative document, including the issue and/or revision used to evaluate the tenderer.
    - g) The name and/or mark/logo of the B-BBEE verification agency.
    - h) The category (Generic, QSE, EME) in which the tenderer has been measured.
    - i) The B-BBEE status level.
    - j) The South African National Accreditation System (SANAS) logo on the verification certificate once verification agencies have been accredited.
    - k) The B-BBEE procurement recognition level.
    - l) The score achieved per B-BBEE element.
    - m) The % black shareholding.
    - n) The % black women shareholding.
    - o) The % black persons with disabilities shareholding
    - p) The % black youth shareholding
    - q) The % black people living in rural or underdeveloped areas or townships shareholding
    - r) The % black military veterans shareholding
    - s) The value-added status of the tenderer.
  7. The Employer will not be responsible to acquire data that it needs for its own reporting systems and which may not form part of a verification agency's standard certificate format. The tenderer, at its own cost, must acquire any missing specified data listed in 4 above from its selected verification agency and have it recorded on the certificate. Alternatively, such missing data must be supplied separately, but certified as correct by the same verification agency and also attached to this form.

**FORM C1.2: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 (INCORPORATING SBD6.1)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

**NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022**

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**1. GENERAL CONDITIONS**

1.1 The following preference point systems are applicable to invitations to tender:

- a) the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- b) the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 **To be completed by the organ of state**

- a) The applicable preference point system for this tender is the 90/10 preference point system.
- b) The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- a) Price; and
- b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	<b>POINTS</b>
<b>PRICE</b>	90
<b>SPECIFIC GOALS</b>	10
<b>Total points for Price and Specific Goals</b>	<b>100</b>

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

**2. DEFINITIONS**

- a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

- c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

### 3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

#### 3.1. POINTS AWARDED FOR PRICE

##### 3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

**80/20 or**

**90/10**

$$Ps = 80 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)$$

or

$$Ps = 90 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

### 4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
  - a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
  - b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

**Table 1: The following specific goals shall be applied on SANRAL tenderers as required in the PPPFA, 2000.**


The specific goals allocated points in terms of this tender	Criteria	Number of points allocated (90/10 system)	Number of points claimed (90/10 system) (To be completed by the tenderer)
B-BBEE level scorecard of the tendering entity.	B-BBEE Level 1	10.00	
	B-BBEE Level 2	9.00	
	B-BBEE Level 3	6.00	
	B-BBEE Level 4	5.00	
	B-BBEE Level 5	4.00	
	B-BBEE Level 6	3.00	
	B-BBEE Level 7	2.00	
	B-BBEE Level 8	1.00	
	Non-compliant contributor	0.00	

**Note to tenderers: The tenderer must indicate how they claim points for each preference point system.**

**5. DECLARATION WITH REGARD TO COMPANY/FIRM**

5.1. Name of company/firm.....

5.2. Company registration number: .....

**5.3. TYPE OF COMPANY/ FIRM**

- Partnership/Joint Venture / Consortium
- One-person business/sole propriety
- Close corporation
- Public Company

- Personal Liability Company
  - (Pty) Limited
  - Non-Profit Company
  - State Owned Company
- [TICK APPLICABLE BOX]

5.4. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- a) The information furnished is true and correct;
- b) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- c) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- d) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
  - i) disqualify the person from the tendering process;
  - ii) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
  - iii) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
  - iv) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
  - v) forward the matter for criminal prosecution, if deemed necessary.

<b>SURNAME AND NAME:</b>	..... <b>SIGNATURE(S) OF TENDERER(S)</b> .....
<b>DATE:</b>	.....
<b>ADDRESS:</b>	..... ..... ..... .....

**FORM D1: SCHEDULE OF TENDERER'S PLANT AND EQUIPMENT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall provide full details in the table below what equipment **will be immediately available for this contract**, what equipment that will become available by virtue of outstanding orders, and what further equipment that will be acquired or hired for the work should the tenderer be awarded the contract.

**D1.1 TOLL OPERATIONS** (e.g. transport vehicles, fax machines, photostat machines, switchboard, cash boxes, coin counters, coin scales, office computers and associated equipment, debtors system, kitchen appliances, gardening appliances, furniture, traffic management aids, cleaning Equipment, training Equipment, consumables, etc.) **(All equipment listed should be in good working condition)**

- a) Equipment immediately available (I)
- b) Equipment in order (O)  
(State details of arrangements made, with delivery dates)
- c) Equipment that will be acquired or hired (H)  
(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER	AVAILABILITY

SIGNED BY TENDERER: .....

**FORM D1: SCHEDULE OF TENDERER'S PLANT AND EQUIPMENT (CONTINUED)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall provide full details in the table below what equipment **that will be immediately available for this contract**, equipment that will become available by virtue of outstanding orders, and further what equipment that will be acquired or hired for the works should the tenderer be awarded the contract.

**D1.2: MIS/BACK-OFFICE SYSTEM AND TOLL COLLECTION LANE EQUIPMENT** (MIS, TCCs, TCTs, AVCs, OHLS, etc., and testing/measuring equipment, including servers, workstations, laptop computers, mimic test panel, oscilloscope, AVC simulator, ETC Equipment, spare equipment, etc.) **(All equipment listed should be in good working condition)**

- a) Equipment immediately available (I)
- b) Equipment in order (O)  
(State details of arrangements made, with delivery dates)
- c) Equipment that will be acquired or hired (H)  
(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER	AVAILABILITY

SIGNED BY TENDERER: .....

**FORM D1: SCHEDULE OF TENDERER'S PLANT AND EQUIPMENT - CONTINUED**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall provide full details in the table below what equipment **that will be immediately available for this project**, what equipment that will become available by virtue of outstanding orders, and further what equipment that will be acquired or hired for the works should the tenderer be awarded the contract.

**D1.3: ELECTRICAL AND MECHANICAL EQUIPMENT** (testing/measuring equipment, including circuit testers, multimeters, oscilloscopes, etc) **(All equipment listed should be in good working condition)**

- a) Equipment immediately available (I)
- b) Equipment in order (O)  
(State details of arrangements made, with delivery dates)
- c) Equipment that will be acquired or hired (H)  
(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER	AVAILABILITY

SIGNED BY TENDERER: .....



**FORM D1: SCHEDULE OF TENDERER'S PLANT AND EQUIPMENT - CONTINUED**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall provide full details in the table below of what equipment **that will be immediately available for this contract**, what equipment that will become available by virtue of outstanding orders, and further what equipment that will be acquired or hired for the works should the tenderer be awarded the contract.

**D1.4: ROUTE PATROL EQUIPMENT (All equipment listed should be in good working condition)**

- a) Equipment immediately available (I)
- b) Equipment in order (O)  
(State details of arrangements made, with delivery dates)
- c) Equipment that will be acquired or hired (H)  
(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER	AVAILABILITY

SIGNED BY TENDERER: .....

**FORM D2: TENDERER'S METHOD STATEMENT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to tenderer:**

**The tenderer shall provide a method statement with the details as indicated on this form.**

The method statement must respond to the Scope of Work and Site Information under Part C4 and outline the proposed approach/methodology. The method statement should articulate what value the Tenderer will add by in achieving the stated objectives for the project.

The Tenderer must as such explain the following:

- a) Its understanding of the objectives of the assignment and the Employer's stated and implied requirements,
- b) Highlight the issues of importance and explain the technical approach they would adopt to address them, and
- c) Explain the methodologies which are to be adopted, demonstrate the compatibility of those methodologies with the proposed approach. The approach should also include a quality plan which outlines processes, procedures and associated resources, applied by whom and when, to meet the requirements and indicate how risks will be managed and what contribution can be made regarding value management.

The tenderer must attach his/her approach paper to this page. The approach paper should not be longer than 5 pages.

SIGNED BY TENDERER: .....

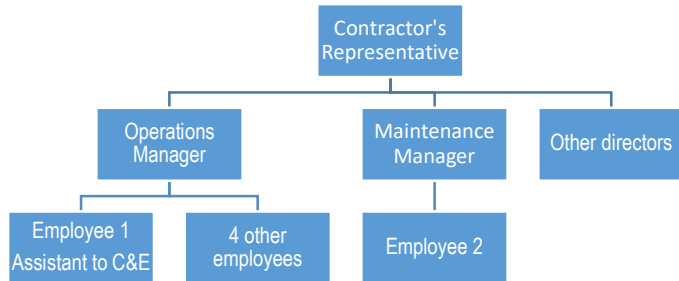
**FORM D3: TENDERER'S ORGANISATION AND STAFFING**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The intention of this form is to demonstrate the tenderer's project structure, as well as the lines of responsibility between members of the project team and between the project team and the overall company structure. Attach own organogram to this form; do not populate the example diagram below.
2. Tenderers which are large companies may simplify the organogram by 'rolling up' portfolios e.g. combining directors/associates into one box of the organogram. However, the individual positions of the key persons within the structure must still be shown. The same person could fill multiple positions.
3. Joint Venture tenders require each element of the venture to submit separate organograms that show the individual structure of each member company and the lines of responsibility of the proposed personnel involved in the project. In addition, there must also be a combined organogram that indicates how the joint venture itself will function and the proposed share of the work will become a contractual obligation between the members of the joint venture.
4. State the city or town where the company's head office is located. The locality of regional or satellite offices, regardless of degree of autonomy or size is not required. Only submit the number of offices other than the head office. Do not count offices outside RSA.
5. Registered professional engineers, technicians or technologists means those who are involved in the road construction/transport industry. Registered professionals of other disciplines (e.g. mechanical) are considered as employees only.
6. In the lower table list those who will be involved in priority order of most to least responsibility for the service. Provide details of the key staff. Except for the MD, all of others must submit Forms D4. The same person may perform multiple roles.



<b>Head Office:</b>	<i>State City/Town. See note 4.</i>
<b>Other Offices:</b>	<i>Only list number, See note 4</i>
<b>Registered Professionals: ECSA or in terms of ECSA approved International Agreements (PrEng, PrTechEng, PrCertEng, PrTechniEng)</b>	<i>See note 5</i>
<b>Registered Professionals: SACPCMP (Pr CM)</b>	<i>See note 5</i>
<b>Total Employees :</b>	
<b>% share in JV agreement:</b>	<i>State 100% if no JV</i>

Name of employee	Position in team	Estimated monthly hours	Relevant specialist areas of knowledge demonstrating suitability for position
	<b>Construction manager (Contractor's Representative)</b>		
	<b>Operations Manager</b>		
	<b>Maintenance Manager</b>		
	<b>Plaza Manager</b>		

SIGNED BY TENDERER: .....

**FORM D4.1: PERSONNEL RESOURCE DETAIL (CONTRACTOR'S REPRESENTATIVE)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project: .....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality: .....</p> <p>With organisation: .....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion, including any professional registration, contract management and FIDIC experience. Copies of Qualifications/Certificates shall be attached to the CV.</li><li>• Percentage of time assigned to this project.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.2: PERSONNEL RESOURCE DETAIL (OPERATIONS MANAGER)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p> <p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p> <p>Proposed position in project: .....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality: .....</p> <p>With organisation: .....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion, including any professional registration, contract management and FIDIC experience. Copies of Qualifications/Certificates shall be attached to the CV.</li><li>• Percentage of time assigned to this project.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.3: PERSONNEL RESOURCE DETAIL (MAINTENANCE MANAGER)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p> <p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p> <p>Proposed position in project: .....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality: .....</p> <p>With organisation: .....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/ Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.4.1: PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 1)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project:.....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality:.....</p> <p>With organisation:.....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/ Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.4.2: PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 2)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project:.....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality:.....</p> <p>With organisation:.....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/ Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....



**FORM D4.4.3: PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 3)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project:.....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality:.....</p> <p>With organisation:.....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/ Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.4.4: PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 4)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project:.....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality:.....</p> <p>With organisation:.....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/ Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.4.5: PERSONNEL RESOURCE DETAIL (PLAZA MANAGER 5)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project:.....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality:.....</p> <p>With organisation:.....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....

**FORM D4.5: PERSONNEL RESOURCE DETAIL (OHS MANAGER/OFFICER)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**1. GENERAL**

The tenderer must have in its permanent employment key personnel/key resources as listed in tender data Clause C.3.11 who meet the minimum requirements as stipulated. Alternatively, the tenderer shall provide a signed undertaking from the organisation having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a subconsultant agreement. Such undertaking must be attached to Form D4 of the Returnable Schedules.

A key person/resource may only be proposed in more than one tender submission if that person is a sub-consultant in each of the tenderers in which the key person/resource is proposed and is not in a permanent employment of any of the tenderers. In the event that the same key person/resource is proposed in more than one tender and the key person/resource is the permanent employment of one of the tenderers, then all tenders proposing the key person/resource will be declared non-responsive.

Where a key person(s)/resource(s) is no longer available to undertake then necessary work after the tender award, the Contractor shall within a period of fourteen (14) working days replace the key person(s)/resource(s) listed in forms D4 with the personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld.

<p><b>2. KEY PERSONNEL DETAILS</b></p> <p>The tenderer shall complete this form in full and provide all the required information for the subject position's proposed candidate.</p>
<p>Company, member of joint venture, subcontractor: .....</p> <p>Discipline: .....</p> <p>Name: ..... Present position: .....</p>
<p>Proposed position in project: .....</p> <p>Speciality: ..... Qualification: .....</p> <p><u>Years Experience</u></p> <p>In field of speciality: .....</p> <p>With organisation: .....</p>
<p><b>3. KEY PERSONNEL RESUMÉ AND CV</b></p> <p>A Curriculum Vitae (CV) of the key person indicated in this form shall be appended to this form and signed by the candidate. The CV (max 4 Pages) shall provide the following information:</p> <ul style="list-style-type: none"><li>• Professional summary.</li><li>• Relevant experience, indicating Position/Role, Period, and area of specialization.</li><li>• Project experience: Project, role, project duration, project phase, project status and project value.</li><li>• Formal education: Qualifications, Institution, and year of completion. Copies of Qualifications/Certificates shall be attached to the CV.</li></ul>

SIGNED BY TENDERER: .....

**FORM D5.1: TENDERER'S EXPERIENCE BASED ON COMPLETED PROJECTS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to tenderer:**

- 1. The tenderer shall provide details of previous experience required for this project and attach contract performance evaluation certificates in the form of CIDB Contractor Performance Reports or official reference letters from previous employer(s).**
- 2. The Tenderer must have satisfactorily completed (at least completed as a prime contractor, joint venture member, management contractor or sub-contractor) a minimum number of three (3) similar contracts matching the subject project's scope of work, between 1st January 2008 and tender submission deadline. The completed contract must have a minimum value that exceeds R 250 million and have a Performance Rating not less than zero (0) Adequate, as rated in terms of the CIDB Performance Rating system or official reference letters from previous employer(s).**
- 3. The Tenderer shall have completed each of the listed projects as either a prime contractor or joint venture member or management contractor or sub-contractor. The listed project's scope of work be shall substantially match that of the subject project's scope of work.**
- 4. Each listed project shall have a Performance Rating not less than zero (0) Adequate, as rated in terms of the CIDB Performance Rating system or official reference letters from previous Employer(s).**
- 5. For listed projects where the Tenderer participated as a joint venture member or sub-contractor, the Tenderer shall state value (V) limited to his/her share of certified work.**
- 6. If the Tenderer is a joint venture, the value of contracts completed by the individual joint venture members can be combined and shall be treated as one contract to determine whether the requirement of the minimum value of a single contract has been met. In the case of combined contracts, each contract performed by each member shall exceed fifty percent (50%) of the minimum value of a single contract as required for single entity. In determining whether the joint venture meets the requirement of total number of contracts, the number of contracts completed by all JV members each of value equal or more than the minimum value required shall be aggregated. For the afore-mentioned purpose, contracts which are combined to meet the minimum value shall be treated as one contract.**
- 7. If one or more of the listed projects does not meet minimum requirements as stipulated above, the tender shall be declared non-responsive in terms of clause C.3.13 (b) of the Tender Data.**

**(List only the most recent 3 projects of the firm that the tenderer considers relevant to the specified scope of works)**

CLIENT	DESCRIPTION OF PROJECT	PROJECT START DATE	PROJECT END DATE	VALUE OF WORK (i.e. the service provided) inclusive of VAT (Rand)	CONTACT PERSON AND FIRM	CONTACT NUMBER	CIDB EQUIVALENT PERFORMANCE RATING (NOT REQUIRED WHERE AN OFFICIAL REFERENCE LETTERS FROM PREVIOUS EMPLOYER(S) IS ATTACHED)

Comments:

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I confirm that the information provided herein is true, that the projects reported, and the corresponding responsibilities are truly the experiences of the firm or consortium of firms tendering for this project.

SIGNED BY TENDERER: .....

**FORM D5.2: TENDERER'S EXPERIENCE BASED ON PROJECTS IN PROGRESS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to tenderer:**

- 1. Submission of this form is optional. This form must be submitted if the tenderer does not comply with the requirements of Form D5.1, and elects to list project(s) that are in progress to comply with afore- mentioned requirements.**
- 2. The Tenderer shall list project(s) in progress as stipulated under Table 1 below which commenced after 1<sup>st</sup> January 2008.**
- 3. The Tenderer shall list 3 project(s) in progress with a minimum value of R 250 million which commenced after 1<sup>st</sup> January 2008. Each listed project shall have a certified value of work that exceeds 40% of the awarded value.**
- 4. The Tenderer shall be employed on each listed project as either a prime contractor or joint venture member or management contractor or sub- contractor. The listed project's scope of work shall substantially match that of the subject project's scope of work.**
- 5. Each listed project shall have a Performance Rating not less than zero (0) Adequate, as rated in terms of the CIDB Performance Rating system or official reference letters from previous employer(s). The Performance Rating and certified value of work at closing date must be confirmed by the Project Employer or Project Engineer in writing.**
- 6. For listed projects where the Tenderer participated as a joint venture member or sub-contractor, the Tenderer shall state value (V) limited to his/her share of certified work.**
- 7. If the Tenderer is a joint venture, the value of contracts completed by the individual joint venture members can be combined and shall be treated as one contract to determine whether the requirement of the minimum value of a single contract has been met. In the case of combined contracts, each contract performed by each member shall exceed fifty percent (50%) of the minimum value of a single contract as required for single entity. In determining whether the joint venture meets the requirement of total number of contracts, the number of contracts completed by all JV members each of value equal or more than the minimum value required shall be aggregated. For the afore-mentioned purpose, contracts which are combined to meet the minimum value shall be treated as one contract.**
- 8. If one or more of the listed projects does not meet minimum requirements as stipulated above, the tender shall be declared non-responsive in terms of clause C.3.13 (b) of the Tender Data.**

**(List only the most recent 3 projects of the firm that the tenderer considers relevant to the specified scope of works)**

CLIENT	DESCRIPTION OF PROJECT	PROJECT START DATE	PROJECT END DATE	AWARD VALUE OF WORK (i.e. the service provided) inclusive of VAT (Rand)	VALUE OF WORKS CERTIFIED BY THE ENGINEER	CONTACT PERSON AND FIRM	CONTACT NUMBER	CIDB EQUIVALENT PERFORMANCE RATING (NOT REQUIRED WHERE AN OFFICIAL REFERENCE LETTERS FROM PREVIOUS EMPLOYER(S) IS ATTACHED)

Comments:

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I confirm that the information provided herein is true, that the projects reported, and the corresponding responsibilities are truly the experiences of the firm or consortium of firms tendering for this project.

**SIGNED BY TENDERER:** .....



**FORM D6: AFFIDAVIT FOR PAST PERFORMANCE REPORTS ON COMPLETED PROJECTS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

I, the undersigned,

Full name and surname	
Identity number	

hereby declare under oath as follows:

- The contents of this statement are to the best of my knowledge a true reflection of the facts.
- I am the authorised signatory for the tendering entity.

Enterprise name (Tendering entity)	
Trading name (if applicable)	

- I hereby declare under oath, by ticking the applicable box below, that the Enterprise has only previously completed:

0 (zero) projects	
1 (one) project	
2 (two) projects	

and as a result, cannot submit Past Performance Reports for the required 3 (three) projects.

- I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

Signed and sworn before me at ..... on the ..... day of  
..... 20.....

.....  
**SIGNATURE OF DEPONENT**

The deponent having:

1. Acknowledge that he/she knows and understands the contents hereof;
2. Confirmed that he/she has no objection to the taking of the prescribed oath; and
3. That he/she considered the prescribed oath as binding upon his/her conscience.

.....  
**COMMISSIONER OF OATHS**

**FORM D7.1: TENDERER'S INDICATIVE PROGRAM**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

1. The tenderer shall attach an indicative programme, reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this contract. The programme shall be in accordance with the information provided in Form D1: Schedule of Contractor's Equipment and with all other aspects of the tender. The programme shall indicate the resources anticipated to be used.
2. The programme shall be in accordance with the information provided in Form D1: Schedule of Contractor's Equipment, Form D14: and with all other aspects of the tender.
3. If a tenderer wishes to submit an alternative tender then this form, appropriately completed, shall also be attached to the Pricing Schedule for the alternative proposal.

SIGNED BY TENDERER: .....

**FORM D7.2: PROPOSED ESTABLISHMENT PROGRAMME**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall indicate the proposed establishment programme. The Establishment Period shall be complete fourteen (14) days before the Commencement Date of Operation Service Period, except for activities indicated below.

ACTIVITY	WEEKS FOR THE ESTABLISHMENT PERIOD						
	-6	-5	-4	-3	-2	-1	0
1 Receipt of contractor's unconditional letter of acceptance							Start of Operations Services Period
2 Finalise/formalise JVs/consortia and contractual documentation							
3 Supply copies of letter of intent to subcontractors to the Employer.							
4 Appointment of personnel							
5 Training of personnel							
6 Evaluation of personnel							
7 Personnel transport arrangements							
8 Appointment of subcontractors (if applicable)							
9 Submission of operations and maintenance procedure manuals							
10 Supply of office equipment, consumables							
11 Supply of electronic/electrical test measurement equipment							
12 Supply of other LE/E&M/MIS equipment							
13 Supply of equipment for route patrol services							
14 Supply of minimum traffic management aids							
15 Provision of insurance certificates and performance security							
16 Registration of utilities in contractor's name							
17 Start of Operation Service Period							
18 Other							

**Note:** Tick the appropriate boxes indicating during which week the activity will take place.

SIGNED BY TENDERER: .....

**FORM D8: SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note to tenderer:**

**If a tenderer wishes to submit an alternative tender then this form, appropriately completed, shall also be attached to the Pricing Schedule for the alternative proposal.**

The tenderer shall state his estimated value of the work to be completed every month, based on his preliminary programme and his tendered unit rates, in the table below.

<b>CERTIFICATE / MONTH</b>	<b>VALUE</b>	<b>CERTIFICATE / MONTH</b>	<b>VALUE</b>
1	R.....	TOTAL b/f	R.....
2	R.....	38	R.....
3	R.....	39	R.....
4	R.....	40	R.....
5	R.....	41	R.....
6	R.....	42	R.....
7	R.....	43	R.....
8	R.....	44	R.....
9	R.....	45	R.....
10	R.....	46	R.....
11	R.....	47	R.....
12	R.....	48	R.....
13	R.....	50	R.....
14	R.....	51	R.....
15	R.....	52	R.....
16	R.....	53	R.....
17	R.....	54	R.....
18	R.....	55	R.....
19	R.....	56	R.....
20	R.....	57	R.....
21	R.....	58	R.....
22	R.....	59	R.....
23	R.....	60	R.....

24	R.....	61	R.....
25	R.....	62	R.....
26	R.....	63	R.....
27	R.....	64	R.....
28	R.....	65	R.....
29	R.....	66	R.....
30	R.....	67	R.....
31	R.....	68	R.....
32	R.....	69	R.....
33	R.....	70	R.....
34	R.....	71	R.....
35	R.....	72	R.....
36	R.....	73	R.....
37	R.....	74(FINAL)*	R.....
TOTAL c/f			
		TOTAL: R .....	

\* Final payment at end of Defects Notification Period is for balance of retention and any other payments due.

SIGNED BY TENDERER: .....

**FORM D9: NOMINATION OF COMPANY, MEMBER, SUBCONTRACTOR, ETC. FOR EACH DISCIPLINE**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

1. Nomination of company, member, subcontractor, etc. for each discipline							
<p>The tenderer shall indicate which company, subcontractor, member of a joint venture, etc. will execute <b>EACH</b> of the disciplines listed below. Where the tenderer has not yet identified or selected a company, subcontractor or member of a joint venture to execute a specific discipline, this shall be stated by entering "not assigned" in the appropriate row of the table. All companies, members of a joint venture and subcontractors that the tenderer intends to include in its organisation must be listed in the table. When one of the listed disciplines is not assigned to a specific party, this party must be listed under "other parties", and the intended role/function of the party must be given.</p>							
DISCIPLINE	NAME OF ORGANISATION	TYPE OF ORGANISATION [e.g. (Pty) Ltd]	CATEGORY OF ORGANISATION (e.g. BE(SMME))	STATUS IN PROJECT: LEADING MEMBER OF JV, COMPANY, SUBCONTRACTOR, ETC	NATIONALITY	YEARS EXPERIENCE IN DISCIPLINE	
						OWN COUNTRY	INTERNATIONAL
1.1 Project management							
<b>1.2 Toll plaza operations</b>							
High-level management							
Toll plaza contractor							
Route patrols							
Cash transfer to banks							
Other							
<b>1.3 Toll Collection Lane Equipment</b>							
<p>Not applicable. (Note: This work falls in the scope of the Nominated Subcontractor that the Employer will appoint and nominate to the successful tenderer.)</p>							

**FORM D9: NOMINATION OF COMPANY, MEMBER, SUBCONTRACTOR, ETC. FOR EACH DISCIPLINE (CONTINUED)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

1. Nomination of company, member, subcontractor, etc. for each discipline							
DISCIPLINE	NAME OF ORGANISATION	TYPE OF ORGANISATION [e.g. (Pty) Ltd]	CATEGORY OF ORGANISATION [e.g. BE(SMME)]	STATUS IN PROJECT: LEADING MEMBER OF JV, COMPANY, SUBCONTRACTOR, ETC	NATIONALITY	YEARS EXPERIENCE IN DISCIPLINE	
						OWN COUNTRY	INTERNATIONAL
<b>1.4 Back Office System (BOS)</b>							
Not applicable. (Note: This work falls in the scope of the Nominated Subcontractor that the Employer will appoint and nominate to the successful tenderer.)							
<b>1.5 Customer call centre</b>							
Supply							
Call centre							
Maintenance							
<b>1.6 Incident management system</b>							
IMS management participant							
<b>1.7 Electrical &amp; mechanical equipment</b>							
Equipment	Supply						
	Maintenance						
Generator (maintenance)							
UPS (maintenance)							
<b>1.8 Financial</b>							
Internal audit							
<b>1.9 Legal</b>							
<b>1.10 Environment</b>							

1. Nomination of company, member, subcontractor, etc. for each discipline							
DISCIPLINE	NAME OF ORGANISATION	TYPE OF ORGANISATION [e.g. (Pty) Ltd]	CATEGORY OF ORGANISATION [e.g. BE(SMME)]	STATUS IN PROJECT: LEADING MEMBER OF JV, COMPANY, SUBCONTRACTOR, ETC	NATIONALITY	YEARS EXPERIENCE IN DISCIPLINE	
						OWN COUNTRY	INTERNATIONAL
<b>1.11 Points of sale</b>							
<b>1.12 Tag management</b>							
<b>1.13 Customer service centres (CSC)</b>							
<b>1.14 Other parties</b>							
<b>1.15 Help Desk System</b>							
Hardware							
Software							
Maintenance							
<b>1.16 Asset Management System</b>							
Hardware							
Software							
Maintenance							

\*\* **Level 1 Maintenance** means that Lane Equipment maintenance comprising, including but not limited to:

- (i) Real time monitoring of servers and lane equipment including error logs, alarms, and specific messages
- (ii) Visual camera and antenna inspections to ensure that camera and antenna angles/aim have not changed
- (iii) Camera glass cleaning on a weekly basis and more frequently during weather events
- (iv) Camera/antenna cable inspections on a regular basis



- (v) Lane cabinet inspections of I/O cards, status lights, camera power supplies, toll system equipment UPSs, loop detectors, and lane controllers
- (vi) Monitors, performs diagnostics, and repair of problems involving vehicle loop detection equipment, automatic vehicle id readers, antennas, RF sources, video cameras switches, multiplexers, optical treadles, and touchscreen POS monitors.
- (vii) Maintain toll collection systems through physical inspection and electronic test and measurement procedures.
- (viii) Performs diagnosis and repair of equipment problems with: zone controllers, computers, printers, traffic signals, gates, IR beams, message signs, scanners, and other toll related equipment
- (ix) And arranging lane closure and coordinating with responsible parties in the event of level 2 maintenance support.

SIGNED BY TENDERER: .....

**FORM D10: TECHNICAL INFORMATION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall complete the following schedule by providing technical details of the equipment to be supplied under this contract. The information given shall be included in the tender document and will be used to determine equipment performance during the testing and commissioning stages. All additional technical information on equipment that the tenderer wishes to include with its tender shall be included in a separate document, entitled “**TECHNICAL INFORMATION**”. The tenderer shall clearly indicate the extent to which the existing assets will be utilized. It should be noted whether existing equipment will be upgraded or replaced.

1. STANDARDS

The tenderer shall itemise each and every standard used in the manufacture of the equipment and shall include such information either in the schedule below or in the separate document entitled “**TECHNICAL INFORMATION**”.

2. TOLL EQUIPMENT PERFORMANCE

The tenderer shall provide the information required below and shall substantiate all information given.

(Note that the Toll Equipment apart from 2.1 below will be provided by a Nominated Subcontractor that the Employer will appoint.)

2.1 Help Desk System

Provide full details of the proposed help desk system.

- i. Supplier details
  - Supplier
  - Other installations
  - Technical support and standby arrangements.
- ii. Technical proposal must provide information pertaining to the following (as per the Contractual requirement detailed in Volume 2)
  - Support services
  - Quality assurance and reporting.

2.2 Asset Management System

Provide full details of the proposed Asset Management System.

- i. Supplier details
  - Supplier
  - Other installations
  - Technical support and standby arrangements.
- ii. Technical proposal must provide information pertaining to the following (as per the Contractual requirement detailed in Volume 2)
  - Support services
  - Quality assurance and reporting.

SIGNED BY TENDERER: .....

**FORM D11: TOLL PLAZA UPGRADING SCHEDULES**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The tenderer shall complete this form if it intends to submit an alternative toll plaza expansion schedule, in which case it shall submit an alternative tender. The tenderer shall indicate any revised average service rates or manageable flow rates used in the table below, if applicable. The tenderer shall indicate all innovative measures it intends to implement, if applicable.

The tenderer shall:

- a) List any revised average service rates or manageable flow rates, if applicable
- b) List the innovative measures it intends to implement, if applicable
- c) Provide a short written description of the tenderer's alternative toll plaza expansion schedule.

**1. AVERAGE SERVICE RATES AND MANAGEABLE FLOW RATES**

Note: The tenderer may only vary average service rates or manageable flow rates used by the Employer with full written motivation, to be provided below:

PARAMETER	EMPLOYER	TENDERER
<b>Average service rate (vehicles per lane per hour)</b>		
Manual lane (urban toll plaza)	300	
Manual lane (rural toll plaza)	250	
Automatic card lane	300	
Mixed manual / ETC lane (urban toll plaza)	300	
Mixed manual / ETC lane (rural toll plaza)	250	
Dedicated ETC lane (with booms)	700	
Dedicated ETC lane (without booms)	1200	
<b>Manageable flow rate</b>		
(The queuing theory function shall be made available on request)		
The tenderer shall list changes		

**2. MOTIVATION FOR CHANGE OF AVERAGE SERVICE RATES OR MANAGEABLE FLOW RATES**

The tenderer shall provide motivation hereunder, if applicable.

.....

.....

.....

.....

**FORM D11: TOLL PLAZA UPGRADING SCHEDULES (CONTINUED)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**3. INNOVATIVE MEASURES THE TENDERER INTENDS TO IMPLEMENT**

*The tenderer shall provide full information of any innovative measures it intends to implement hereunder, if applicable.*

.....  
.....  
.....  
.....

**4. ALTERNATIVE TOLL PLAZA EXPANSION SCHEDULE**

*The tenderer shall provide full particulars of any alternative toll plaza expansion schedule it intends to employ hereunder, if applicable.*

.....  
.....  
.....  
.....

SIGNED BY TENDERER: .....

**FORM D12: ADDITIONAL INFORMATION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**ADDITIONAL INFORMATION**

Any further information to be considered with the tender shall be added below. In addition, if other documents are attached, these shall be listed below. If no additional information is submitted, this form shall be marked "N/A" (not applicable).

SIGNED BY TENDERER: .....

**FORM D13: DISTRIBUTION OF RISK BETWEEN THE MAIN CONTRACTOR AND THE NSC AND ANY OTHER SUBCONTRACTORS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. This form shall be signed by the Contractor (appointed through this tender process and known as the “Operations and Maintenance Contractor” or MC) and the Nominated Subcontractor (appointed through another tender process and also referred to as the NSC) and is included in both tenders. The form jointly covers the risk related to the collection of Toll or the supply, installation or maintenance of the Toll System.**
- 2. If the risk for any of these activities will be shared or carried by any party other than a subcontractor, the agreements with these party(s) shall be submitted in terms of Clause 4.4 of FIDIC General Conditions of Contract (2008) Volume 1 Book 1 for sub-contracts.**

**Risk transfer model:**

1. The Toll system is a factor in controlling many of the operational risks inherent in the CTROM contract. As such, any underperformance of the Toll System heightens the risk. This section defines the mechanism of transferring the risks equitably and accurately to the entity most capable of detecting issues, managing, and implementing timeous corrective steps.
2. The Payment Methodology (V2B7a) transfers income losses (V2B7a clause 4.5) to the Main Contractor, for which the Main Contractor tenders as part of their monthly OPEX rate. Income losses, under optimal Toll System performance, is therefore covered by Main Contractor. Mechanisms are in place to address Main Contractor losses due to exceptional events.
3. The Payment Methodology also includes the inherent data source variances, which include Toll System detection and classification variances.
4. Reducing Toll System related risks and losses is reliant on a properly designed and deployed Toll System, hardware and software support, operational mitigation and effective management of personnel and resources. The responsibilities therefore are:
  - a) The monitoring of all the relevant aspects of the operational, technical and KPI conformance at regular intervals, by the MC and/or NSC. This includes inspections and feedback from site staff, monitoring of system incidents, monitoring of statistical trends and electronic payment submission processes.
  - b) Early detection of possible non-compliances and
  - c) Implementation of corrective steps, including steps/procedures to limit the impact of the identified non- performance. This includes steps/procedures to limit the impact of known system defects and system limitations.

**Toll System support procurement models:**

**For the Toll System Support and related A5300 range Cost Matrix items, the following roles and responsibilities are defined for the Main Contractor (MC) and the Nominated Subcontractor (NSC):**

1. The MC will perform Toll Operations only and the NSC will perform Toll System Software and Hardware Maintenance.
2. The NSC will therefore have full-time on-site technicians and do remote software support and maintenance.
3. The MC will be responsible for the supply and maintenance of the Help Desk and Toll Equipment record system and regular Workshop spares stock control.
4. The NSC will also be required to do maintenance and update the Help Desk and Toll Equipment record system entries, based on their site activities and regular Workshop spares stock control and replenishment.

### **Toll System supply and upgrade**

**The roles of the MC and NSC during the Toll System supply and upgrade are as follow:**

1. The MC will perform Toll Operations only
2. The NSC will perform Toll System Software and Hardware Maintenance, that will include:
  - a) The design, procurement, testing, commissioning and handover of the Toll System software and hardware supply in terms of the various cost matrix items (B 2000 and B3000 range items).
  - b) Toll system functional, provisional, and full compliance verification.
  - c) Supply a full set of critical spares,
  - d) Maintenance: Hardware and software maintenance of the system. All system KPIs will apply during the upgrade process

### **Definition of Roles in Main Contract and Nominated Subcontract**

**Please refer to PART C1 for a definition of the various roles between the two contracts, including that of the Employer, Principal Employer, Employer's Representative, Main Contractor and Nominated Subcontractor.**

## RISK CATEGORY, DESCRIPTION, CAUSES, MITIGATION AND ALLOCATION

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*						
1	Technical specifications risk: Design	Design that results in individual technical characteristics of the Toll System that fail to meet standards and specifications.	Low quality of works, non-compliance with standard Specifications and the rectification of known or latent defects.  Failure to implement accurate KPI reporting and Health Monitoring	NSC, MC and ER to perform quality control.  Apply Penalties	Main CTROM Contractor (MC) or Subcontractor (NSC) <table border="1"><tr><td></td><td></td></tr><tr><td>MC</td><td>NSC</td></tr><tr><td>20%</td><td>80%</td></tr></table>			MC	NSC	20%	80%
MC	NSC										
20%	80%										
2	Completion risks: Toll system Upgrade	The possibility that the completion of Toll System works may be delayed	Difficulties/Delay in developing undelivered requirements.  Incomplete requirements Supply, deployment and commissioning failures.	Apply Penalties.	Main CTROM Contractor (MC) or Subcontractor (NSC) <table border="1"><tr><td></td><td></td></tr><tr><td>MC</td><td>NSC</td></tr><tr><td>20%</td><td>80%</td></tr></table>			MC	NSC	20%	80%
MC	NSC										
20%	80%										
3	Completion risks: SANRAL MIS and SANRAL Toll System	The possibility that the completion of SAP MIS RSS Mediation layer works may be delayed	Difficulties in developing mediation layer to requirements.  Incomplete requirements Failure in understanding technical requirements	Follow Contractual process.	Covered under other items in this table.						
4	Cost over-run risk	The possibility that during the design build phase of the SANRAL MIS Toll System Interface, the actual costs will exceed projected Project costs (Provisional Sum).	Mistakes in design build cost estimates.  Underestimating technical requirements Increased costs through the fault of Subcontractor. Contingencies.	Follow Contractual process.	Follow Contractual process.						
5	Design risk	The possibility of mistakes in SANRAL MIS Toll System Interface mediation layer project solutions.	Technical solutions mistakes.	Follow Contractual process.	Follow Contractual process.						
6	Exceptional Event and risks	The possibility of the occurrence of certain unexpected events that	Various natural and man-made causes.	Follow Contractual process.	Follow Contractual process.						



	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*
		are beyond the control of the Parties (natural disasters, civil riots)			
7	Insolvency risk	The possibility of the insolvency of the Main CTROM Contractor or/ and Subcontractor.	Increased debt liabilities under the Project. Low revenue - Main Contractor/ Subcontractor	Follow Contractual process.	Follow Contractual process.
8	Insurance risk	The possibility that insurance services become inaccessible or too costly.	Increase theft and Vandalism	Follow Contractual process.	Follow Contractual process.
10	Currency Volatility risk	The possibility that volatility in currency will increase the cost of specialized imported TS equipment	Due to inflation levels, interest rates, geopolitical stability, import and export levels, and monetary policy	List items subject to exchange rate fluctuations on Form B1, Part T2.	Follow Contractual process.
12	Regulatory risk	The possibility that Consents required from the government will not be obtained or, if obtained, can only be implemented at a greater cost than originally projected.	Relating to planning	Follow Contractual process.	Follow Contractual process.
13	The risk that the Project Assets at termination or expiry will not be in the prescribed condition.	Risk of value loss on the transfer of the project or at termination of the Concession Agreement.	Insufficient maintenance of the toll system, civils and E& M. Delayed overhaul and preventive maintenance. Carelessness of contractors.	Follow Contractual process.	Follow Contractual process.
14	Resource or input risk	The possibility of a failure or shortage in the supply of the inputs or resources required for the operation of the project.	Main Contractor's & or Subcontractor cash-flow problems	Financial Sustainability checks as part of evaluation stage.	Follow Contractual process
15	Technology obsolescence risk	The possibility that the technology inputs for the outsourced institutional function may fail to	The use of obsolete materials and equipment.	Obligation on Main CTROM Contractor to refresh technology as required from time to time	Main CTROM Contractor (MC) or Subcontractor (NSC) <input type="text"/>

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*				
		deliver the required output specifications, or technological improvements may render these technology inputs out-of-date.		to meet the output specifications. Penalty Deductions for failure to meet output specifications.	<table border="1"> <tr> <td>MC</td> <td>NSC</td> </tr> <tr> <td>20%</td> <td>80%</td> </tr> </table>	MC	NSC	20%	80%
MC	NSC								
20%	80%								
16	Utilities risk	Shortage of utilities (e.g. water, electricity, etc.), necessary for construction and/or operation of the project.	Failure of the utility companies to provide utility services.	Emergency back-up facilities.	Main Contractor				
17	Revenue risk	Income lost to fraud or operational negligence in use of Toll System	Due to vehicle discrepancies not assigned correctly for cash transaction. Toll staff collusion Processing in lanes with known defects	Close faulty lanes in favour of fully functional lanes. Payment Methodology - decision tree Segregation of duties Internal controls VGS audits and Incident control to ensure quick mitigation of risks	Main Contractor, follow Contractual process.				
18	Revenue risk Design defect risk: AVC detection and classification	TEL traffic may be used to determine the income payable to SANRAL	Due to AVC or MIS not been the highest income traffic arising from AVC detection and or classification inabilities.	Validation and Verification of vehicles by the supervising toll plaza personnel Audit reports Count accuracy audits Create lost transactions Assign lifted axle status. Apply KPI penalties.	Main Contractor and NSC, follow Contractual process.				
19	Revenue risk Design defect risk: Lost transactions	System defects arising in Loss of income	Due to flaws in the systems mentioned or failures of the systems mentioned Written-off cross-read and overdue ETC transactions.	System compliance NSC to correct defects Recover identified errors Use VGS audit to assign responsibility.	Main Contractor and NSC, follow Contractual process.				

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*						
20	Revenue risk Design defect risk:	Contractor might lose income due to differences between the MIS and TEL traffic or income as per the payment decision tree as applied by the Main Contractor's ER.	Toll system defects TEL defects	Toll System Maintenance Data verification and validation Video footage of traffic entering and exiting lanes Count accuracy audits Create lost transactions Assign lifted axle status. Apply KPI penalties.	Main Contractor and NSC, follow Contractual process.						
21	Revenue risk	Charge - backs	Validations list not implemented on time as per the merchant agreement	Monitor processes and ensure validation list are implemented as per the merchant agreement	Main Contractor and NSC, follow Contractual process						
22	Design defect risk.	Latent defects taken over from existing Toll System	System not compliant to Employer's requirements	Manual workarounds need to be implemented by MC.  Expedite establishment upgrades and system replacement.	Main Contractor and NSC, follow Contractual process						
23	Financial risk Operational risk	Data loss	Back-up and data archiving failure HDD failure Loss of data via network	Contractual Storage Requirement must be adhered to and verified	Main Contractor and NSC, follow Contractual process						
24	Toll System risk	System limitations	Poor System Design	Manual workarounds need to be implemented	Main Contractor and NSC, follow Contractual process						
25	Risk due to non-compliant AVC accuracy	Non-compliant AVC accuracy – Software related		Decision tree AVC related KPI's	OPEX: Main Contractor Related KPI: Main Contractor & NSC  <table border="1"> <tr> <td>MC</td> <td>NSC</td> </tr> <tr> <td>20%</td> <td>80%</td> </tr> </table> <p>The following KPI's will be assigned as indicated by the table above.</p> <table border="1"> <tr> <td>Ref</td> <td>Name</td> </tr> </table>	MC	NSC	20%	80%	Ref	Name
MC	NSC										
20%	80%										
Ref	Name										

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*														
					<table border="1"> <tr> <td>CT3a</td> <td>AVC Availability (Critical Errors)</td> </tr> <tr> <td>CT3b</td> <td>AVC Availability (Serious Errors)</td> </tr> <tr> <td>CT3c</td> <td>Automatic Vehicle Classification for Class 1 to 4</td> </tr> <tr> <td>CT3d</td> <td>AVC Count</td> </tr> <tr> <td>CT8a</td> <td>Compliance with Employer's reporting requirements – Critical Reports</td> </tr> <tr> <td></td> <td>AVC Accuracies</td> </tr> <tr> <td></td> <td>System Availability</td> </tr> </table>	CT3a	AVC Availability (Critical Errors)	CT3b	AVC Availability (Serious Errors)	CT3c	Automatic Vehicle Classification for Class 1 to 4	CT3d	AVC Count	CT8a	Compliance with Employer's reporting requirements – Critical Reports		AVC Accuracies		System Availability
CT3a	AVC Availability (Critical Errors)																		
CT3b	AVC Availability (Serious Errors)																		
CT3c	Automatic Vehicle Classification for Class 1 to 4																		
CT3d	AVC Count																		
CT8a	Compliance with Employer's reporting requirements – Critical Reports																		
	AVC Accuracies																		
	System Availability																		
26	Risk of increase cost due to system upgrades	Additional cost due to system upgrades brought on by system obsolescence, lack of support for operating systems, hardware and application software and performance related issues.	Obsolete Equipment, Software etc.	Contractual requirements – Upgrade / Replacement of equipment due to obsolescence, lack of support or performance problem	Main CTROM Contractor (MC) and Subcontractor (NSC) <table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td>MC</td> <td>NSC</td> </tr> <tr> <td>20%</td> <td>80%</td> </tr> </table>			MC	NSC	20%	80%								
MC	NSC																		
20%	80%																		
27	Risk of Inadequate Insurance	Risk of damage to systems and the consequential losses thereof due to lightning, theft, vandalism and accident damage not covered by insurance.	Inadequate insurance coverage	Penalties and KPIs pertaining to non-compliance to repair of damaged assets, equipment functionality, maintenance performance etc.	Main Contractor														
28	Asset replacement risk	Cost of equipment replacement, spares and equipment related consumables related to toll systems.		Asset replacement responsibility specified in contract	Main CTROM Contractor (MC) and Subcontractor (NSC) <table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td>MC</td> <td>NSC</td> </tr> <tr> <td>20%</td> <td>80%</td> </tr> </table>			MC	NSC	20%	80%								
MC	NSC																		
20%	80%																		
29	Risk of damages arising	Risk due to any other consequential, incidental or indirect damages		Follow the Contractual Process	Follow the Contractual Process														
30	System defect risk	System Compliance Penalties	Non-Compliance	Apply Penalties	Main CTROM Contractor (MC) and Subcontractor (NSC) <table border="1"> <tr> <td></td> <td></td> </tr> </table>														

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*	
					MC	NSC
					20%	80%
31	Interest risk due to late deposits: Cash	Interest on late deposits to the bank arising from cash	Cash at the plaza not deposited within the prescribed contractual time.	Follow the Contractual Process.	Main Contractor	
32	Interest risk due to late deposits: Credit cards-stop here	Interest on late deposits to the bank arising from credit card transactions	Bank not receiving the credit card transaction information within the prescribe merchant agreement.	Follow the Contractual Process	Main Contractor (MC) or Subcontractor (NSC)	
					MC	NSC
					50%	50%
33	Loss of Income – Electronic settlement of toll transactions	Charge backs implemented by the Banks due to “Negative files” not downloaded to lanes within the contractual timelines	Hotlisted cards not downloaded into the toll lanes within the prescribed contractual time.	Follow the Contractual Process	Main Contractor (MC) or Subcontractor (NSC). The Party responsible for the loss of income – 90% the other Party 10%.	
34	Operational and Financial risk-	Late submission of monthly reports	All transaction not validated, Missing data, Contractor’s personnel have not closed all shifts.	Contractual recourse (penalties) + Payment cert not being processed  Apply applicable KPIs	KPI: Main Contractor (MC) or Subcontractor (NSC)	
					MC	NSC
					50%	50%
					The following KPI’s will be assigned as indicated by the table above.	
					Ref	Name
					CT8a	Compliance with Employer’s reporting requirements – Critical Reports
						Hourly, Daily & Monthly Traffic Report
						Discount / Exempt Report
						Account Status
						Payment Trends
						Day/Month Closures

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*																																										
					<table border="1"> <tr><td></td><td>AVC Accuracies</td></tr> <tr><td></td><td>System Availability</td></tr> <tr><td></td><td>Equipment failures</td></tr> <tr><td></td><td>Response &amp; Repair times</td></tr> <tr><td></td><td>Problem Data</td></tr> <tr><td></td><td>Support Reports</td></tr> <tr><td></td><td>Stock &amp; Spares</td></tr> <tr><td></td><td>Performance Measurement Report</td></tr> <tr><td></td><td>KPI 11</td></tr> <tr><td></td><td>KPI 19</td></tr> <tr><td>CT8b</td><td>Compliance with Employer's reporting requirements – Non-Critical Reports</td></tr> <tr><td></td><td>Transaction Tariff report</td></tr> <tr><td></td><td>Discount Structure Report</td></tr> <tr><td></td><td>Transaction details report</td></tr> <tr><td></td><td>Class discrepancy acknowledgement</td></tr> <tr><td></td><td>Access Control</td></tr> <tr><td></td><td>Version Control</td></tr> <tr><td></td><td>MTBF</td></tr> <tr><td></td><td>Incident Report</td></tr> <tr><td></td><td>Dashboard Report</td></tr> <tr><td></td><td>Upgrade Reports</td></tr> </table>		AVC Accuracies		System Availability		Equipment failures		Response & Repair times		Problem Data		Support Reports		Stock & Spares		Performance Measurement Report		KPI 11		KPI 19	CT8b	Compliance with Employer's reporting requirements – Non-Critical Reports		Transaction Tariff report		Discount Structure Report		Transaction details report		Class discrepancy acknowledgement		Access Control		Version Control		MTBF		Incident Report		Dashboard Report		Upgrade Reports
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	MTBF																																														
	Incident Report																																														
	Dashboard Report																																														
	Upgrade Reports																																														
35	Reputational and safety risk	Queue Length penalties	Not enough lanes opened to process vehicles as per average processing time.	Contractual Requirements governing queues	Main Contractor																																										

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*																								
36	TS enhancement risks-	Regression after system fixes and enhancements implemented	Patched deployed on production site without proper internal quality and control checks	Contractual requirements addressing software changes	Main Contractor and NSC, follow Contractual process																								
37	System defect risk	Software or AVC, TCC or other 3 <sup>rd</sup> party license expiry, failure or termination	Subcontractor has a AVC license expiry date which is not in accordance with the contractual license agreement	Subcontractor provided a 20yr to perpetual license/s	Main Contractor and NSC, follow Contractual process																								
38	Maintenance risk	Unavailability of spares	Poor inventory control and spares management	Contractual requirement governing repair times and availability of spares	Main Contractor and NSC, follow Contractual process																								
39	Support and Maintenance risk-	Toll system supplier poor performance with regards to providing satisfactory service and support in terms of system supply and maintenance	Low quality of maintenance of the works, lack of spares and other site factors that cause non-compliance with standard Specifications.	NSC and MC monitor, detect issues and inform Operational staff ASAP.  The MC to manage the use of affected lanes, when possible, to limit the risk.	<p>OPEX: Main Contractor (MC) KPI: Main Contractor (MC) or Subcontractor (NSC)</p> <table border="1"> <tr> <td></td> <td></td> </tr> <tr> <td>MC</td> <td>NSC</td> </tr> <tr> <td>20%</td> <td>80%</td> </tr> </table> <p>The following KPI's will be assigned as indicated by the table above.</p> <table border="1"> <thead> <tr> <th>Ref</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>CT1a</td> <td>Repair Time Compliance – Severity Level 1 - Employer Facilities</td> </tr> <tr> <td>CT1b</td> <td>Repair Time Compliance – Severity Level 2 - Employer Facilities</td> </tr> <tr> <td>CT1c</td> <td>Repair Time Compliance – AVC and TCC</td> </tr> <tr> <td>CT2a</td> <td>SCADA Availability</td> </tr> <tr> <td>CT2b</td> <td>VGS Availability (Critical Errors)</td> </tr> <tr> <td>CT2c</td> <td>QLS Availability (Critical Errors)</td> </tr> <tr> <td>CT2d</td> <td>QL1 Availability (Critical Errors)</td> </tr> <tr> <td>CT2e</td> <td>QL2 Availability (Critical Errors)</td> </tr> </tbody> </table>			MC	NSC	20%	80%	Ref	Name	CT1a	Repair Time Compliance – Severity Level 1 - Employer Facilities	CT1b	Repair Time Compliance – Severity Level 2 - Employer Facilities	CT1c	Repair Time Compliance – AVC and TCC	CT2a	SCADA Availability	CT2b	VGS Availability (Critical Errors)	CT2c	QLS Availability (Critical Errors)	CT2d	QL1 Availability (Critical Errors)	CT2e	QL2 Availability (Critical Errors)
MC	NSC																												
20%	80%																												
Ref	Name																												
CT1a	Repair Time Compliance – Severity Level 1 - Employer Facilities																												
CT1b	Repair Time Compliance – Severity Level 2 - Employer Facilities																												
CT1c	Repair Time Compliance – AVC and TCC																												
CT2a	SCADA Availability																												
CT2b	VGS Availability (Critical Errors)																												
CT2c	QLS Availability (Critical Errors)																												
CT2d	QL1 Availability (Critical Errors)																												
CT2e	QL2 Availability (Critical Errors)																												

	CATEGORY	DESCRIPTION	CAUSES	MITIGATION	ALLOCATION*	
					CT2f	BOS Availability (Critical Errors)
					CT2g	PGW Availability (Critical Errors)
					CT4a	Daily AVC Data Transmission – Un-validated
					CT4b	Daily AVC Data Transmission – Validated
					CT4c	Daily Back-Office Data Transmission
					CT4d	Monthly Back-Office Data Transmission
					CT4e	Monthly Back-Office Income Data Transmission
					CT10	Charging and charge reconciliation processes - accuracy
					CT12	ETC lane availability
					CT13	ETC Transaction Records submitted to TCH – timeliness.
					CT15	QLS –availability
					CT16	Maintenance

The MC and NSC should note that the table above, which considers the various possible risks, will have an impact on the application of the Performance Measurement Model (PMM), contained in Volume 2 Book 6a. Each KPI, or Penalty Item could be influenced in terms of risk distributions, depending on the risk at play. The tables below show how each performance measurement could be influenced by various risk types above, which impacts on the risk distribution between the MC and NSC. If a case occurs where the situation is not accurately described in the risk table, and/or the risk allocation is not fair, the ER for the Main Contractor shall consult with the MC, NSC and the Principal Employer and issue a Determination in line with the Conditions of Contract (FIDIC) Sub-clause 3.5 [Determinations].

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SECTION 4				
KPI #	Description	Penalty Application		Comment
		MC	NSC	
CT1a	Repair Time Compliance – Severity Level 1 - Employer Facilities	100%	0%	Main Contractor
CT1b	Repair Time Compliance – Severity Level 2 - Employer Facilities	100%	0%	Main Contractor



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<b>CT1c</b>	Repair Time Compliance (AVC & TCC)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 17, 19, 22, 23, 24, 25, 26, 36, 37, 38
<b>CT1d</b>	Repair Time Compliance – Severity Level 1 Permanent Design Built Assets	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT1e</b>	Repair Time Compliance – Severity Level 2 Permanent Design Built Assets	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT2a</b>	SCADA Availability	100%	0%	Main Contractor
<b>CT2b</b>	VGS Availability (Critical Errors)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT2c</b>	QLS Availability (Critical Errors)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT2d</b>	QL1 Availability (Critical Errors)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT2e</b>	QL2 Availability (Critical Errors)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT2f</b>	BOS Availability (Critical Errors)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT2g</b>	PGW Availability (Critical Errors)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
<b>CT3a</b>	AVC Availability - Critical Errors	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 25, 26, 36, 37, 38

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<b>CT3b</b>	AVC Availability - Serious Errors	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 25, 26, 36, 37, 38
<b>CT3c</b>	AVC Accuracy	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 25, 26, 36, 37, 38
<b>CT3d</b>	AVC TOTAL Count Accuracy	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 25, 26, 36, 37, 38
<b>CT4a</b>	DAILY UN-Validated AVC Transmission Data (ITIS)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 26, 36, 37, 38
<b>CT4b</b>	DAILY Validated AVC Transmission Data (ITIS)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 26, 36, 37, 38
<b>CT4c</b>	DAILY BOS Transmission Data (ITIS)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 26, 36, 37, 38
<b>CT4d</b>	MONTHLY BOS Transmission Data (ITIS)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 26, 36, 37, 38
<b>CT4e</b>	MONTHLY BOS INCOME Transmission Data (ITIS)	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 13, 15, 26, 36, 37, 38
<b>CT6a</b>	Route Call Centre Service Availability including IVR Services	20%	80%	
<b>CT6c</b>	Route Call Centre Queuing Time including IVR Services pending transfers to an Operator	20%	80%	
<b>CT8a</b>	Compliance with Employer's reporting requirements – Critical Reports	20%	80%	
<b>CT8b</b>	Compliance with Employer's reporting requirements – Non-Critical Reports	20%	80%	
<b>CT9</b>	POP Customer Service Facilities - availability	20%	80%	
<b>CT10</b>	Charging and charge reconciliation processes – accuracy	20%	80%	
<b>CT11</b>	Customer Satisfaction	20%	80%	
<b>CT12</b>	ETC Lane Availability	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38

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CT13	ETC Transaction Records submitted to TCH – timeliness. Availability	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 17, 19, 22, 23, 24, 26, 36, 37, 38
CT14	TCH Account Registration Processing Accuracy	20%	80%	
CT15	QLS Availability	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 1, 13, 15, 26, 36, 37, 38
CT16	Maintenance	20%	80%	For Risk Allocation, see the applicable risk description and allocation. The following Risk numbers are applicable to this KPI: 38
CT18	Tactical marketing programme Level of Service (LOS)	20%	80%	
CT20	Route Patrol Personnel Qualifications	100%	0%	Main Contractor
CT21	Fresh Air Management System	100%	0%	Main Contractor
SECTION 6				
Clause #	Description			Description
		MC	NSC	
6.2.1	In the event that the Contractor does not fully comply with its obligations relating to <b>maintenance of documents, drawings and Software</b> in terms of Clauses 2 of the Standard Specifications of the Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a) herein, the Contractor shall pay a penalty for the following:			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 38
6.3.1	In the event that the Contractor does not provide for and accept all specified <b>Methods of Payment</b> as specified in Clause 7 of the Standard Specifications of Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a) from the Commencement Date of the Operations Service Period or such other date as may be stipulated by the Employer Representative, the Employer shall be entitled to terminate this Agreement. Alternatively, the Contractor shall pay a penalty for the initial event of non-compliance and for each month of non-compliance thereafter.			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 17, 19, 22, 23, 24, 36, 38

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6.3.2	In the event that the Contractor does not comply with the <b>VAT business rules</b> contained in the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a) from the Commencement Date of the Operation Service Period or such other date as stipulated by the Employers Representative, the Employer shall be entitled to terminate this Agreement. Alternatively, the Contractor shall pay a penalty for the initial event of non-compliance and for each month of non-compliance thereafter.			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 17, 19, 22, 23, 24, 36, 38
6.4.1	In the event that the Contractor does not meet the <b>Queue Length Specification</b> in terms of Clause 10.3 of the Standard Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) during any 15 (fifteen) minute period of monitoring done by the Contractor or the Employer's Representative, the Contractor shall pay a <b>penalty</b> for each 15 (fifteen) minute period of non-compliance.	100%	0%	Risk is for the Main Contractor
6.4.2	In the event that the Contractor meets the <b>Queue Length Specification</b> in terms of Clause 10.3 of the Standard Specifications for Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a) during any 15 (fifteen) minute period of monitoring done by the Contractor or Employer Representative for a period, as specified in the Project Document (Volume 3), the Employer shall pay an <b>incentive</b> to the Contractor.	100%	0%	Risk is for the Main Contractor
6.4.3	In the event that the Contractor does not meet the <b>Average Service Time</b> Specification in terms of Clause 10.5 of the Standard Specifications of Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a) the Contractor shall pay the <b>penalty</b> for each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.4.4	In the event that the Contractor meets the <b>Average Service Time</b> Specification in terms of Clause 10.5 of the Standard Specifications of Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a) for a period, as specified in the Project Document (Volume 3), the Employer shall pay an <b>incentive</b> to the Contractor.	100%	0%	Risk is for the Main Contractor
6.5.1	In the event of an <b>MIS failure</b> , the Contractor shall pay a penalty for each day that such failure was recorded or for each day or part thereof that data loss occurred.			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 17, 19, 22, 23, 24, 36, 37, 38

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<p><b>6.5.2</b></p>	<p>In the event that the Contractor process more than ten (10) vehicles in a lane where the AVC is in <b>Critical Error Mode</b>, the Contractor shall pay a penalty for each event of non-compliance. This penalty shall be applied per event of non-compliance up to a maximum of twenty (20) events per lane per calendar month. <b>(Incident 49)</b></p>			<p>See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 37, 38</p>
<p><b>6.5.3</b></p>	<p>In the event the Contractor has not submitted the complete results of the <b>initial AVC accuracy certification process</b> (including all requisite corroboratory information) as indicated in the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a) within forty five (45) days after the completion of the initial AVC monitoring period, the Contractor shall pay a penalty per week until such time as these results have been submitted to the Employer Representative.</p>			<p>See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 25, 38</p>
<p><b>6.5.4</b></p>	<p>In the event that the Contractor operates the lanes in <b>Manual Mode</b>, the Contractor shall pay the following penalties –</p>			<p>See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 17, 19, 22, 23, 24, 36, 37, 38</p>
<p><b>6.5.5</b></p>	<p>In the event that the Contractor does not <b>comply with the AVC system/the Employer interface requirements</b> of the Standard Specifications for Operations and Maintenance for CTROM Projects: Toll Systems (Volume 2 Book 4a), from the Commencement Date or such other date as stipulated by the Employers Representative, such non-compliance, the Contractor shall pay a penalty per equipment type for each event of non-compliance. This penalty shall be applied once per calendar month, for each calendar month of non-compliance.</p>			<p>See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 38</p>
<p><b>6.5.6</b></p>	<p>In the event that the Contractor's <b>Toll Collection Lane Equipment</b> does not comply with the requirements for User Fare Displays, Receipts and/or Lane Tax Invoices issued in the Lanes, Tariff boards, Lane mode boards, Overhead Lane Signs and Traffic Lights (User interface), as contained in the Standard Specifications for Operations and Maintenance for CTROM Projects: Toll Systems (Volume 2 Book 4a), the Contractor shall pay a penalty per equipment type for each event of non-compliance. This penalty shall only be applied once per month, for each month of non-compliance.</p>			<p>See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 17, 19, 22, 23, 24, 36, 37, 38</p>

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6.5.7	In the event that the Contractor does not comply with the <b>interface requirements</b> between all other systems excluding the AVC, and the Employer, as contained in the Standard Specifications for Operations and Maintenance for CTROM Projects: Toll Systems (Volume 2 Book 4a) from the Commencement Date or such other date as stipulated by the Employers Representative, the Contractor shall pay a penalty for each month of non-compliance.			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 17, 19, 22, 23, 24, 36, 37, 38
6.5.8	In the event that the Contractor does not fully comply with the requirements of the Standard Specifications for Operations and Maintenance for CTROM Projects: <b>Electronic Toll Collection (ETC)</b> (Volume 2 Book 5), the Contractor shall pay a penalty for each month of non-compliance and for each month of non-compliance thereafter.			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 17, 19, 22, 23, 24, 36, 37, 38
6.5.9	In the event that the Contractor does not provide a <b>detailed program</b> for the <b>complete Toll System upgrade/replacement activities</b> within a) 5 days for Section 1, b) 21 days for section 2, c) 14 days for any other notice after the commencement date, the Contractor shall pay a penalty as specified in the Project Document (Volume 3) per day for each day or part thereof, that the program is submitted late.	20%	80%	
6.5.10	In the event that the Contractor does not meet the dates for the <b>milestone targets</b> (listed below), as indicated on the approved <b>Toll System upgrade/replacement program</b> , the Contractor shall pay a penalty. This penalty shall be applied per event where milestone target dates have not been met by the Contractor:	20%	80%	
6.6.1	In the event that the Contractor does not comply with its obligations relating to <b>recording and reporting of damage</b> in terms of Clause 14.3.5 of the Standard Specifications of Operations and Maintenance for CTROM Projects: General – (Volume 2 Book 2a), the Contractor shall pay a penalty for each occurrence.	100%	0%	Risk is for the Main Contractor
6.7.1	In the event that the Contractor does not comply with its obligations relating to <b>Asset Management System</b> as detailed in Clause 14.4 of the Standard Specifications of the Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a), the Contractor shall pay a penalty for the following:			See Risk Allocations in the Risk table when this penalty item is triggered because of the following risk numbers: 1, 13, 15, 36, 37, 38

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6.8.1	In the event that more than 10% (ten percent) of the <b>canopy luminaires</b> are not functional at any Toll Plaza, the Contractor shall pay a penalty for each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.8.2	In the event that more than 10% (ten percent) of the <b>lighting mast luminaires</b> are not functional at any Toll Plaza, the Contractor shall pay a penalty for each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.8.3	In the event that the Contractor does not submit a <b>3 (three) yearly corrosion status reports</b> on all assets, in accordance with the Standard Specifications of the Operations and Maintenance for CTROM Projects: General (Volume 2 book 2a), within 5 (five) Business Days after the last day of each 2 (two) month period commencing from the Commencement Date, the Contractor shall pay a penalty for each event of non-compliance, and every subsequent month thereafter.	100%	0%	Risk is for the Main Contractor
6.8.4	In the event that the Contractor does not submit a <b>monthly handyman, HVAC or equipment failure report</b> , in accordance with the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 book 2a), Contractor shall pay a penalty for each event of non-compliance, and every subsequent month thereafter.	100%	0%	Risk is for the Main Contractor
6.9.1	In the event if an <b>interruption of electricity supply</b> to any Toll Plaza as a result of the Clause 15.1 of the Standard Specifications of the Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a) the Contractor shall pay a penalty. Without prejudice to any other remedy which the Employer may have either in terms of this Agreement or in law, the Employer shall be entitled to call on the Performance security.	100%	0%	Risk is for the Main Contractor
6.9.2	In the event of non-compliance by the Contractor of its obligations pursuant to Clauses .15.1 of the Standard Specifications for Operations and Maintenance for CTROM Projects: General – Volume 2 Book 2(a), ( <b>save in respect of electricity supply</b> ), the Contractor shall pay for each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.9.3	In the event of an interruption in the <b>UPS or emergency electricity supply to the Toll Plaza</b> , the Contractor shall pay the following penalty:	20%	80%	

Volume 2 Book 6a				
6.10.1	In the event that the Contractor does not comply with its obligations specified in Clauses 15.4 ( <b>Safety and Security</b> ) of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), the Contractor shall pay a penalty for the each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.10.2	In the event that the Contractor achieves any type of <b>safety rating, i.e. NOSA-5star</b> or similar, during the duration of this agreement, an incentive for the safety ratings obtained during a twelve (12) month period will be paid to the Contractor.	100%	0%	Risk is for the Main Contractor
6.11.1	In the event that the Contractor does not comply with its obligations specified in Clause 15.5 ( <b>Quality Assurance</b> ) of the Standard specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), the Contractor shall pay a penalty for each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.12.1	In the event that the Contractor does not comply with its obligations relating to the <b>handover of documents</b> to the Next Contractor pursuant to the provisions of this Agreement, the Employer shall without prejudice to any other remedy which the Employer may have pursuant to this Agreement and in law, be entitled to call on the Performance Security, if any.	100%	0%	Risk is for the Main Contractor
6.13.1	In the event the Contractor does not comply with all the requirements related to the participation of <b>Incident Management System</b> specifications as specified in Clause 19.2 of the Standard Specifications of Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), then the Contractor shall pay a penalty for each event of non-compliance.	100%	0%	Risk is for the Main Contractor
6.14.1	In the event that the Contractor does not meet the following <b>route service patrol specifications</b> . The following penalties shall apply:	100%	0%	Risk is for the Main Contractor
6.14.1.1	If the Contractor does not comply to the frequency of Route Service Patrols and the number of Patrol Vehicles as specified in the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) then the Contractor pay a penalty for each day of non-compliance.	100%	0%	Risk is for the Main Contractor
6.14.1.2	If the Contractor does not comply with activities listed in Clause 19.4 of the Standard Specifications for Operations and Maintenance CTROM Projects: General (Volume 2 Book 2a) then the Contractor pay a penalty for each day of non-compliance.	100%	0%	Risk is for the Main Contractor



Volume 2 Book 6a				
6.14.1.3	If the Contractor does not comply with the verification of incidents listed in Clause 19.4 of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) then the Contractor pay a penalty for each day of non-compliance.	100%	0%	Risk is for the Main Contractor
6.14.1.4	If the Contractor does not comply with the minimum required equipment specified in Clause 19.4 (Route Patrol Service) of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) then the Contractor pay a penalty for each day of non-compliance.	100%	0%	Risk is for the Main Contractor
6.15.1	In the event that the Contractor does not meet the requirements related to the <b>Customer Call Centre</b> as specified in Clause 19.3 of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a). The Contractor shall pay a penalty for each day of non-compliance.	100%	0%	Risk is for the Main Contractor

SIGNED BY TENDERER: .....

**FORM D14: TECHNICAL PROPOSAL**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to tenderer:**

- 1. The tenderer shall take cognisance of the scoring methodology in TENDER DATA: APPENDIX 1: BREAKDOWN OF QUALITY CRITERIA (CLAUSE C.3.11) of PART T1.**
- 2. The tenderer shall submit a signed copy of this Technical Proposal, providing a clear statement of his / her understanding and approach to execute the work, using the headings and sub-headings listed below. The Employer shall only consider a tender if the information provided is clearly stated in the tender documentation. Any other relevant details that the tenderer intends to submit, must be compiled and submitted as an Appendix to the Technical Proposal.**
- 3. Failure to provide the required information in this form with the tender submission may render the tenderer's offer non-responsive in terms of tender condition C.3.8.**

**1. Relevant Experience of the Tendering Entity**

The tenderer to complete Returnable Schedule Forms D5.1 and Form D5.2 to indicate the relevant projects.

**1.1. Past performance**

The tenderer to provide all relevant experience and durations on the Employers type Contracts and any other types of projects.

**2. Quality Management System (QMS)**

The tenderer to provide copies of any Quality related Certification(s).

**3. Development of Key Previously Disadvantage Individual (PDI) / Previously Disadvantage Individual Staff and New Entrant**

**3.1. Key PDI Staff**

The tenderer to provide a list of key PDI staff proposed for this project.

**3.2. Targeted Enterprise (New Entrant)**

The tenderer is required to provide in detail the intended/proposed process how a Targeted Enterprise (TE) (New Entrant) will be mentored/trained in order to be able to do all the functions/tasks related to day-to-day Toll Operations and Maintenance. The information to be provided should include but not be limited to the following:

- i) Describe the process to identify the TE (New Entrant)
- ii) Detailed program indicating all the steps/stages that the TE (New Entrant) will go through until it manages toll operators.
- iii) List all the training module(s) and duration for each module(s) or training stage(s).
- iv) How the risk transfer from tenderer to TE (New Entrant) will be managed and the type of risk that will be transferred.
- v) How the tenderer will supervise and monitor the TE (New Entrant).
- vi) The proposed timeframe (month(s) or year(s)) that the New Entrant will fulfil all the Toll Operations and Maintenance functions on their own.
- vii) Any other relevant information.

**4. Key Resources and other important personnel**

The tenderer to provide Curriculum Vitae (no longer than A4 page) reflecting the contract management, toll operations, human resource management, required experience and any other experience on SANRAL type of Contracts and/or similar Contracts for the following persons:

- i) Contractor's Representative (Key Person)
- ii) Operations Manager (Key Person)
- iii) Maintenance Manager (Key Person)
- iv) Plaza Manager(s)
- v) SHEQ Manager/officer
- vi) Main Contractor's (MC) Representative (to fulfil Employer's Representative duties in the Nominated Subcontract)
- vii) Project Manager (for the Toll System Design and Built stages and for the Operations phase)
- viii) E&M Project Manager (if applicable)
- ix) E&M Route and/or Site Technicians

## **5. Organisational Structure**

### **5.1. Organisation and Staffing**

- i) The tenderer to provide the proposed overall project organogram.
- ii) The tenderer to provide the proposed detailed organogram indicating the proposed names of key resources, operations departments, number of staff for each staff level / category for each Toll Plaza.
- iii) The tenderer to provide breakdown of the proposed manning levels.
- iv) The tenderer to provide breakdown of the various staff categories that is reflected in the appropriate items of the Schedule of Payments/Costs Matrix.
- v) The tenderer to indicate what resources are outsourced and what are in-house.

Note: No cost information shall be provided in this Technical Proposal.

## **6. Proposed Operations Management Plan**

### **6.1. Understanding the Overall Operations Requirements**

The tenderer to include an understanding of the overall Operations Requirements in the plan, this to provide the Employer confidence that the tenderer has the capacity, skill and depth to deal with the operational aspects listed below.

- i) Role players
- ii) Traffic risk
- iii) Transaction risk
- iv) Interfaces
- v) Performance Management
- vi) Reporting

### **6.2. Understanding the National Interoperability Concept**

The tenderer to include an understanding of the National Interoperability Concept in the plan, this to provide the Employer confidence that the tenderer has the capacity, skill and depth to deal with the operational aspects listed below.

- i) The role of the national TCH
- ii) Dealing with Road Queries (point of presence, Call Centre, etc)
- iii) TCH interface management
- iv) Electronic transaction file transfer
- v) Account settlement
- vi) Road User mobility account registration
- vii) Tag management (procurement, distribution and stock control)

### **6.3. Establishment and mobilisation**

The tenderer to include the Establishment and mobilization activities in the plan, this to provide the Employer confidence that the tenderer has the capacity, skill and depth to deal with the operational aspects listed below.

- i) Staff transfers (Section 197)
- ii) Staff procurement
- iii) Training
- iv) Sub-contractor procurement
- v) On-site establishment
- vi) Envisaged timelines and program

### **6.4. Financial Management (including that of revenue streams)**

- a) The tenderer to provide financial management strategies of how the management, processes and controls will be executed at the various levels to protect and secure the toll income.
- b) The tenderer to provide previous relevant experience on financial management.
- c) The Tenderer is required to address the topics listed below under financial management:
  - i) Understanding the financial management requirements
  - ii) The proposed resource management plan (including all resource categories and numbers)
  - iii) Cash management solutions
  - iv) Reconciliations (Revenue vs Transactions)
  - v) Banking services management

### **6.5. Traffic Management**

- a) The tenderer to provide a detail traffic management plan indicating how the various traffic conditions may impact the management and control at the Toll Plazas, and how manning levels will be adapted to cater for various possible traffic conditions.
- b) The tenderer to provide previous relevant experience in traffic management.
- c) The Tenderer is required to address the topics listed below under financial management:
  - i) Dealing with manning levels
  - ii) Dealing with queues
  - iii) Manual processing (no power, no system)

### **6.6. Maintenance management (Facilities, E&M, etc)**

- a) The Tenderer is required to provide a maintenance plan and address the topics listed below to provide confidence to the Employer that the tenderer can execute the maintenance requirements specified in the tender:
  - i) Understanding the Maintenance Scope of Works
  - ii) The approach to specialist maintenance, routine and ad-hoc maintenance
  - iii) The proposed resource management plan (including all resource categories and numbers)
  - iv) Fault reporting and responses
  - v) Managing system touching equipment and spares availability risk (including Business Continuity Solutions)
  - vi) Asset replacement and hand-back
- b) For Specialist subcontractors, the tenderer to provide the name, the experience in the specialist field and the details of the proposed maintenance and support team for the following specialist services:
  - i) Generator maintenance

- ii) UPS maintenance
- iii) HVAC maintenance
- c) The Tenderer is required to provide more information about the designer/supplier, proposed system, typical high-level functionality, and other relevant information of the Electrical & Mechanical assets to be procured (if applicable and included in the Cost Matrix):
  - i) Solar PV Detail Design
  - ii) Power meters
  - iii) Luminaire upgrades
  - iv) UPS replacements/upgrades
  - v) Generator replacements/upgrades
  - vi) SCADA System
  - vii) Security cameras

#### **6.7. System maintenance (1st line support)**

- a) The Toll System Development and Maintenance shall be performed by a Nominated Subcontractor to be appointed by the Employer. This Technical Proposal shall include the Tenderer's understanding of the management and function of the Toll System and Maintenance component of this project, including the management and control of the Nominated Subcontractor and the management of the risk factors in this relationship.
- b) The Tenderer is required to provide a system maintenance plan and address the topics listed below to provide confidence to the Employer that the tenderer can execute the maintenance requirements specified in the tender:
  - i) Understanding the System Maintenance Scope of Works
  - ii) Hardware and software support (in the context of the Contractor's scope)
  - iii) Fault reporting and responses
  - iv) The proposed resource management plan (including all resource categories and numbers)
  - v) Managing toll system and spares availability risk (incl. Business Continuity solutions)
- c) The Tenderer is required to provide more information about the supplier, proposed system, and typical high-level functionality of:
  - i) Help Desk System
  - ii) Asset Management System

#### **6.8. Performance Management**

The tenderer to provide information of how the performance will be monitored and reported as specified in the tender requirements. The tenderer shall also indicate plans on how performance can be improved and how it was managed on other similar projects.

#### **6.9. Risk Management**

- a) The tenderer is to provide a Risk Management Plan (RMP) detailing all the perceived risks while execution this type of contract. The risks need to be categorized in terms of risk severity (low to high risk) and how these risks be managed and controlled. The RMP needs to provide comfort to the Employer that the tenderer understands the risks in this contract.
- b) The tenderer shall complete, sign and clearly define/distribute the risk between NSC and the Main Contractor, and any subcontractor(s) in the Returnable Documents "Form D13".
- c) The Risk Management Plan shall indicate and list all the perceived toll system related risks. The perceived risks need to be categorised in terms of risk severity (low to high risk) and how these risks will be managed and controlled on the, but not limited to the following items:
  - i) Communication risks (WAN and LAN)
  - ii) AVC (level of compliance in terms of CTROM requirements)

- iii) Toll lane (level of compliance in terms of CTROM requirements)
  - iv) ETC and all other Payment Mechanisms in the Toll Lane (level of compliance in terms of CTROM requirements and downstream obligations).
  - v) VGS/QLS and Booth Camera obligations (to surpass the minimum levels of compliance in terms of CTROM requirements).
  - vi) BOS and other peripheral systems and data platforms (level of compliance in terms of CTROM requirements).
- d) The Risk Management Plan shall indicate and list all the perceived electrical and mechanical maintenance risks at the Toll Plazas, including the management and control of these risks.

**6.10. Quality Assurance**

The tenderer is to provide a Quality Assurance Plan indicating the processes and controls at the various facets of toll operations and maintenance, including electrical and mechanical maintenance.

**6.11. Environmental Management**

- a) The tenderer to provide an Environmental Management Plan indicating the processes and controls to be applied at the various facets of toll operations and maintenance, including electrical and mechanical maintenance.
- b) The tenderer to provide any Environmental related Certification(s).

**6.12. Health and Safety**

- a) The tenderer to provide a plan indicating how the latest OSHACT requirements will be met and maintained during the Contract, including for the provision and maintenance of the toll system and electrical and mechanical equipment.
- b) The tenderer to provide copies of any OHS related Certification(s).

**6.13. Security**

The tenderer to provide the proposed level of security to be implemented at the various Toll Plazas.

**6.14. Other**

The tenderer to provide other relevant information.

**7. Tendering Entity's Indicative Program**

The tenderer to provide an indicative programme of the following activities:

- i) All establishment and mobilisation activities
- ii) The transitioning from the current Contractor
- iii) Staff take-over requirements and / or procurement requirements

**8. Financial Statements**

- a) The tenderer to provide a copy of the latest available Audited Financial Statements. Where the tenderer's latest financial period has ended more than 6 (six) months prior to the closing date of the tender, the tenderer's annual financial statements of the most recent reporting period shall be submitted. If this is not possible, the tenderer must provide motivation from the auditors to explain why the statement from the recent period is not available, together with the financial statements of the preceding financial year.
- b) The tenderer must show that it has an average annual turnover, over the last five (5) years of the tendering entity, in excess of R100 million (Excl. VAT) per year. If the tendering entity is a Consortium or Joint Venture, the annual turnover will be considered the sum of all shareholders or members and evidence thereof.

SIGNED BY TENDERER: .....

**FORM D15: CORPORATE SOCIAL INVESTMENT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

With regard to clause D1012: Community Development, of the Project Specifications:

**Notes to tenderer:**

- 1. The tenderer shall list below Corporate Social Investment initiatives that will actively be pursued for this project.**
- 2. The Corporate Social Investment initiatives will be evaluated and applied as objective criteria in terms of section 2(1)(f) of the Preferential Procurement Policy Framework Act, 2000.**

<b>CSI Initiative</b>	<b>Community Affected</b>	<b>Estimated Rand Value of Initiative</b>	<b>Estimated Time for Implementation</b>

SIGNED BY TENDERER: .....

**FORM E1: ELECTRICAL SCHEDULE OF MATERIALS****CONTRACT SANRAL N.017-024-2019/1****FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD****Note to Tenderer:**

The schedules must only be completed insofar as the equipment and materials required for this particular contract are concerned.

If these schedules are not properly completed by the tenderer, his bid document will be regarded as incomplete. All technical data sheets to be attached to this Form E1 to complete the tender submission to ensure the complete evaluation of the tender offer.

Where types, etc. are filled in below and these do not comply with the Specification, this must be specifically pointed out by the Tenderer. Filling in of types, etc. below does not, if they do not comply, signify that they are acceptable or will be accepted. Any changes to the specification or requirements must be approved in writing by SANRAL before making any changes.

**1. CABLES, CONDUCTORS AND ACCESSORIES AS PER V2B3**

EQUIPMENT AND MATERIAL	DESCRIPTION AND MAKE
PVC SWA PVC LV Cable	
PVC SWA PVC LV Cable glands	
PVC SWA PVC LV Cable joints	
PVC SWA PVC LV Cable terminations	

**2. POWER METER AS PER PS3**

EQUIPMENT AND MATERIAL	DESCRIPTION AND MAKE
Power meter	
Energy and Power Management Software (EPMS)	

**3. LED LUMINAIRES AS PER PS9 AND V2B3**

TYPE	SUPPLIER AND LED LUMINAIRE INFORMATION THAT COMPLIES WITH PS9
New LED	Gosforth and Dalpark Mainline Toll Plazas:
LR 1	
LR 2	
New LED 1	New LED lamps for Ermelo, Trichardtsfontein and Leandra Mainline Toll Plazas:
LA 1	
LB 1	

**4. LIGHT POLES/MASTS AS PER PS14 V2B3**

TYPE	MANUFACTURER
P1	
P	



P3	
P4	
P5	
P6	

**5. UNINTERRUPTED POWER SUPPLY UP TO 50kVA AS PER PS16**

TYPE	MANUFACTURER AND MODULE
Static	
6kVA	
Modular	
20kVA	
40kVA	
60kVA	
Note special conditions:	

**6. AUTOMATIC DIESEL STANDBY GENERATOR UP TO 250KVA AS PER PS17 AND V2B3**

TYPE	MANUFACTURER AND MODULE	
Prime power rating	Motor	Alternator
60kVA		
100kVA		
150kVA		
200kVA		
250kVA		
Note special conditions:		

**7. ACCESS CONTROL SYSTEM AS PER PS18 AND V2B3**

EQUIPMENT AND MATERIAL	DESCRIPTION AND MAKE
Controller	
Door reader (biometric)	
Software	

**8. FIRE DETECTION SYSTEM AS PER PS40 AND V2B3**

TYPE	MANUFACTURER AND MODULE
Control panel	
Sensors	

**9. SECURITY CAMERAS AS PER PS18.6.2 AND V2B3**

TYPE	MANUFACTURER AND MODULE
Camera	
Control room / monitoring	

**10. SCADA SOLUTION PS18 AND V2B3**

TYPE	MANUFACTURER AND MODULE
SCADA or	
BMS or	
Other	

**11. WALL AND SPLIT-TYPE AIR CONDITIONS PS29 AND V2B3**

TYPE	MANUFACTURER AND MODULE
9000BTU mid-wall-split	
12000BTU mid-wall-split	
18000BTU mid-wall-split	
24000BTU mid-wall-split	
48000BTU Hear recovery system	

**FORM F1: SCHEDULE OF TENDER COMPLIANCE****CONTRACT SANRAL N.017-024-2019/1****FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD****Note to tenderer:**

This form has been created as an aid to ensure a tenderer's compliance with the completion of the returnable forms and schedules and subsequent placement in the correct envelope.

<b>FORM NO / SBD NO</b>	<b>FORM DESCRIPTION</b>	<b>TICK IF COMPLETED</b>
<b>A1</b>	CERTIFICATE OF CONFIRMATION THAT THE TENDERER READ THE PRESENTATION/VIEWED THE VIDEO	
<b>A1.1</b>	CERTIFICATE OF INTENTION TO SUBMIT A TENDER	
<b>A2.1</b>	CERTIFICATE OF AUTHORITY FOR SIGNATORY	
<b>A2.2</b>	DECLARATION OF TENDERER'S CURRENT STATUS OF ANY DEBT OUTSTANDING TO SANRAL	
<b>A2.3</b>	CERTIFICATE OF SINGLE TENDER SUBMISSION	
<b>A2.4</b>	CERTIFICATE OF FRONTING PRACTICES	
<b>A2.5</b>	DECLARATION OF DOMESTIC PROMINENT INFLUENTIAL PERSONS, FOREIGN PROMINENT PUBLIC OFFICIALS AND FOREIGN INFLUENTIAL NATIONALS (DPIPS, FPPOS & FINS)	
<b>A2.6</b>	CERTIFICATE OF PERMISSION TO CONDUCT DUE DILIGENCE INVESTIGATION	
<b>A3.1/SBD4</b>	BIDDER'S DISCLOSURE	
<b>A3.2/SBD9</b>	CERTIFICATE OF INDEPENDENT TENDER (REPEALED)	
<b>A3.3</b>	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	
<b>A3.4</b>	REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE	
<b>A3.5/SBD6.2</b>	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS	
<b>A3.6</b>	LOCAL CONTENT DECLARATION: SUMMARY SCHEDULE (ANNEXURE C)	
<b>A4</b>	SCHEDULE OF DEVIATIONS OR QUALIFICATIONS BY TENDER	
<b>A5</b>	SCHEDULE OF ADDENDA TO TENDER DOCUMENTS	
<b>A6/SBD2</b>	CERTIFICATES OF TAX COMPLIANCE	
<b>A7</b>	CERTIFICATE OF INSURANCE COVER	
<b>A8</b>	TENDERER'S REGISTERED FINANCIAL SERVICE PROVIDER LETTER AND BANK DETAILS	
<b>A9.1</b>	SCHEDULE OF TENDERER'S LITIGATION HISTORY	
<b>A9.2</b>	ENVIRONMENTAL, SOCIAL, HEALTH, AND SAFETY PERFORMANCE DECLARATION	
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**PART C1            AGREEMENTS    AND    CONTRACT  
                                 DATA**

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**C1.1 FORMS OF OFFER AND ACCEPTANCE**

**C1.1.1 LETTER OF OFFER (INCORPORATING SBD7)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The South African National Roads Agency SOC Limited  
PO Box 415  
PRETORIA  
0001

Sir,

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

1. I/we, by signing this part of the forms of offer and acceptance acknowledge they are the equivalent of the Letters of Tender and Acceptance as defined in clauses 1.1.48 and 1.1.49 in the “Conditions of Contract for Design, Build and Operate Projects” (2008), published by the Fédération Internationale des Ingénieurs-Conseils, (FIDIC).
2. I/we confirm that I/we practise the principles of corporate governance that abhors corruption and fraud, and that I/we have examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules and am/are duly authorised to represent and commit the tenderer to the contractual obligations contained therein.
3. I/we further confirm that by submitting this offer the tenderer accepts the conditions of tender and offers to perform all of the obligations and liabilities of the contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of tender and the conditions of contract identified in the contract data.
4. PRICE OFFERED

**THE OFFERED TOTAL OF THE PRICES FOR THE DESIGN-BUILD OF WORKS AND THE OPERATION SERVICE PERIOD 73.5 MONTHS (INCLUSIVE OF VALUE ADDED TAX) BROUGHT FORWARD FROM SECTION C2.2 SCHEDULE OF PAYMENTS/COST MATRIX IS:**

.....  
 .....  
 .....(in words)

R .....(in figures)

I/we confirm that if any difference between the total of the Schedule of Payments/Cost Matrix and the amounts stated above exists, the amount stated in words shall apply.

**5. PREFERENCE CLAIMED**

I/we claim the following B-BBEE contributor status level ..... as per Returnable Schedule Form C1.1.: Tenderer’s B-BBEE Verification Certificate subject to Tender Data C.3.11 In the event of any difference between the above stated status level and the Verification Certificate attached to Form C1, the Verification Certificate shall apply.

6. You may accept this offer by signing and returning to the tenderer one copy of the letter of acceptance before the end of the period of validity stated in the tender data, (or at the end of any agreed extension thereof), whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

7. Notwithstanding anything contained in a covering letter to this tender, I/we declare this offer is submitted entirely without deviations or qualifications other than those stipulated in Form A4: Schedule of Deviations or Qualifications by the tenderer, and that it is made free from any fraud, corruption and misrepresentation.

Yours faithfully

SIGNATURE: ..... DATE: .....

NAME (IN CAPITALS): .....

CAPACITY: .....

Date and minute reference of Board resolution if different from returnable schedule Form A2.1:

Certificate of Authority for Signature .....

NAME AND ADDRESS OF ORGANISATION: .....

.....

**NAME AND SIGNATURE OF WITNESSES:**

AS WITNESSES:

1 ..... .....

SIGNATURE ..... NAME (IN CAPITALS)

2 ..... .....

SIGNATURE ..... NAME (IN CAPITALS)



## C1.1.2 FORM OF ACCEPTANCE (INCORPORATING SBD7)

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

*Note to compiler: Form to be printed on SANRAL letterhead*

To *(Name of successful tenderer)*

Dear Sir,

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

### ACCEPTANCE OF OFFER

1. It is our pleasure to inform you that the South African National Roads Agency SOC Limited (the Employer) accepts your *(select if applicable corrected/corrected alternative/alternative)* offer in the amount of R..... (i.e. including VAT but excluding cost indexation and any contingent sum not in the priced schedule) for the Operation Service Period of three (3) years with the base date of ..... (28 days prior to the actual closing date of tender).
2. The amount due may not be the Accepted Contract Amount but payment shall be made in accordance with the conditions of contract identified in the contract data.
3. This Letter of Acceptance constitutes the Letter of Acceptance as defined in clause 1.1.48 of the "Conditions of Contract for Design, Build and Operate Projects" (2008), published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC) Gold Bank.
4. Acceptance shall form an agreement between us according to the terms and conditions contained in this form and in the Contract that is comprised of:  
  
Part C1: Agreements and Contract Data (including this Letter of Acceptance),  
Part C2: Pricing Data,  
Part C3: Scope of the Work,  
Part C4: Site Information,  
Part D: Stakeholder and Community Liaison, and Targeted Labour and Targeted Enterprises utilisation and development; and  
Part E: Annexures  
together with issued drawings, addenda, Employer Requirements and other documents, or parts thereof, which may be incorporated by reference into Parts listed above.
5. Deviations and/or qualifications included in your offer as well as any changes to the terms of the offer agreed by us during the process of tender offer and acceptance shall not be valid unless contained in the tendered Returnable Schedule of deviations. In the event that an alternative offer is accepted, it is a fundamental Condition of Acceptance that all responsibilities and concomitant liabilities arising from the alternative design, methodology or the like, pass from us to you. Addenda issued during the tender period are not deemed to be deviations to the tender documents and schedules.
6. Notwithstanding the need to agree the mandate required by Section 37 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), a proforma of which is attached for your reference, we hereby appoint you as the Principal Contractor in terms of Regulation 5(1)(k) of the Construction Regulations, GNR. 84 of 2014.
7. A SARS compliance check has been done on you and you are found to be ..... (Select: "compliant" or "non-compliant"). (Note to compiler: check SARS website for compliance. If not compliant add the following sentence: "Within 7 calendar days of the date of this Form of Acceptance you shall provide proof that you are SARS compliant. Failure to fulfil this obligation shall constitute a repudiation of this agreement.")

8. Within fourteen (14) calendar days of the date of this Letter of Acceptance (including the tendered Returnable Schedule of deviations if any) you shall deliver to us:
  - i) Performance Security – Surety Bond (as per clause 4.2 and 13.8 of the Conditional of Contract (FIDIC)) a pro forma is contained in the sample forms of tender and agreement of the FIDIC DBO Conditions of Contract for your reference. There shall be no deviations from the wording of the pro forma Performance Security – Surety Bond.
  - ii) Proof of insurance in terms of the information provided in the Contract Data and clause 19 of the Condition of Contract (FIDIC). Proof of currency of insured cover shall be provided on a monthly basis until date stated in Contract Completion Certificate.
  - iii) Fully completed and signed form together with your Health and Safety plan and proof of the Construction Health and Safety Officer's Registration with SACPCMP.
  - iv) Proof that you are registered and in good standing with the compensation fund or with a licensed compensation insurer.
  - v) A completed Form of banking Details. (Note to compiler: only include this if the successful tenderer has not previously been registered as a vendor with the Employer)
  - vi) Proof of registration on the Employer's Project Information Module (ITIS).
  - vii) Alternative nominated DAB member details. Note to compiler: only include this if a standing DAB is specified under Conditions of Contract clause 20.2

*Note to compiler: If applicable, The completed Form A3.5, Form A3.6 and Form C1.1.2 of the successful tenderer is to be forwarded to the Department of Trade, Industry and Competition (Industrial Procurement Unit) after award*

Failure to fulfil either of the obligations in (i), (ii) or (iii) above, shall constitute a repudiation of this agreement and we may at our discretion apply any rights of remedy including barring you from tendering on any of our future tenders for a period to be determined by us, but not less than twelve (12) months, from the date of tender closure.

9. The effective date of the contract shall be the date of this Letter of Acceptance unless you within four (4) calendar days of the effective date, notify us in writing of any justification why you cannot accept the contents of this agreement.

The Commencement Date of the Works shall be that on which the commencement meeting is held, which shall not be later than ..... Access to the Site shall be on the Commencement Date.

10. The tenderer must register an account on SAP Ariba before the hand-over meeting. The link and information to register the Ariba account is provided below.

<https://www.nra.co.za/sap-ariba/>

Contact: ProcurementNR4@sanral.co.za for queries regarding SAP Ariba registration.

11. Notwithstanding that a full, original-signed copy of the Contract document containing all Contract Data and schedules (including that of accepted deviations) will be delivered to you, this Letter of Acceptance constitutes the binding contract between us.

12. Messrs ..... act as our Employers Representative to fulfil the functions and duties in the administration of this Contract. Please contact ..... at ..... to make arrangements for the signing of the Contract documents and handover of the Site.

SIGNATURE: ..... DATE: .....

NAME (IN CAPITALS): .....

CAPACITY: Regional Manager Northern Region

EMPLOYER'S NAME AND ADDRESS:

The Regional Manager (Northern Region)  
The South African National Roads Agency SOC Ltd  
38 Ida Street  
Menlo Park  
Pretoria,  
0081

AUTHORITY TO ACT: **SANRAL Delegation of Authority: Item 2.4.1.2.**

**NAME AND SIGNATURE OF WITNESSES:**

AS WITNESSES:

.....

SIGNATURE

.....

NAME (IN CAPITALS)

.....

SIGNATURE

.....

NAME (IN CAPITALS)

**C1.1.3 APPENDIX TO FORM OF ACCEPTANCE**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

Schedule of Deviations

The deviations listed below constitute agreed deviations/amendments to the tender document negotiated between the tenderer and Employer based on information provided in the tendered Returnable Schedule of Deviations or Qualifications by tenderer or imposed conditions of award.

1. Subject: .....  
Details: .....
2. Subject: .....  
Details: .....
3. Subject: .....  
Details: .....
4. Subject: .....  
Details: .....

By the duly authorised representatives signing this agreement, the Employer and the tenderer agree to and accept the afore-going schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the Returnable Schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the Employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Contract shall have any meaning or effect in the Contract between the Parties arising from this agreement..

#### C1.1.4 CONTRACT AGREEMENT

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

This Agreement made on the \_\_\_\_\_ day of \_\_\_\_\_ ,  
20\_\_\_\_\_,

between **THE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED**

of **48 Tambotie Avenue, Val de Grace, Pretoria, South Africa**

(herein called "the Employer"), of the one part,

and \_\_\_\_\_ (*name of Contractor*)

of \_\_\_\_\_ (*address of Contractor*)

(herein called "the Contractor"), of the other part:

Whereas the Employer desires that the "**CONTRACT SANRAL N.017-024-2019/1 FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**" (the Works), should be completed, improved, expanded, replaced, designed, executed, commissioned, operated and maintained by the Contractor and has accepted a Tender from the Contractor for the design, execution, completion, commissioning and operation and maintenance of these Works, and the remedying of any defects therein.

#### **The Employer and the Contractor agree as follows:**

1. In this Agreement, the words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as a part of this Agreement:
  - a) The Letter of Acceptance dated
  - b) The Letter of Tender dated
  - c) The Addenda Nos.
  - d) The Conditions of Contract
  - e) The Employer's Requirements
  - f) The completed Schedules
  - g) The Operating Licence, and
  - h) The Contractor's Proposal
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby agrees with the Employer to design, execute, complete and commission the Design-Build works, and to operate and maintain the Works and remedy any defects therein in conformity with the provisions of the Contract and the Operating Licence granted by the Employer.
4. The Employer hereby agrees to pay the Contractor, in consideration of the design, execution, completion and commissioning of the Design-Build works, and the operation and maintenance of the Works and the remedying of defects therein, the Contract Price at the times and in the manner prescribed by the Contract, and to grant the Contractor a royalty-free licence to enable him to take-over, operate and maintain the Works during the Operation Service Periods.

In witness whereof the Parties hereto have caused this Agreement to be executed on the day and year first above written.

SIGNED BY: \_\_\_\_\_  
(Signature)

SIGNED BY: \_\_\_\_\_  
(Signature)

for and on behalf of the Contractor in the presence of

for and on behalf of the Employer in the presence of

WITNESS: \_\_\_\_\_  
(Signature)

WITNESS: \_\_\_\_\_  
(Signature)

NAME: \_\_\_\_\_

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

## **C1.2 CONTRACT DATA**

### **C1.2.1 INTRODUCTION**

This Contract will be a Main Contract for the Operations and Maintenance of the TOLL PLAZAS ON THE N17 TOLL ROAD. A Nominated Subcontractor for the Design Build Operations and Maintenance of the Toll System for this project will be nominated by the Employer and the Contractor shall be required to appoint this nominated subcontractor, in accordance with the stipulations of the Contract.

#### **C1.2.1.1 CONDITIONS OF CONTRACT CONCEPTS**

The Conditions of Contract comprise the "General Conditions", "Particular Conditions Part A – Contract Data" and "Particular Conditions Part B – Special Provisions", which include amendments and additions to such General Conditions.

For the Main Contract the following shall apply:

1. The General Conditions of Contract shall be the "Conditions of Contract for Design, Build and Operate Projects, First Edition 2008" published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC)
2. The Contract Data (Particular Conditions, Part A) as set out in the Main Contract Part C1, and which provisions take preference over the General Conditions and Special Provisions; and
3. The Special Provisions (Particular Conditions, Part B) as set out in the Main Contract PART C1, and which provisions take preference over the General Conditions.
4. A copy of the Main Contractor's Tender Document will be available on SANRAL's website to the NSC for purposes of context and a better understanding of the Works.

For the Nominated Sub-Contract (NSC) (this Contract) the following shall apply:

1. The General Conditions of Contract shall be the "Conditions of Contract for Design, Build and Operate Projects, First Edition 2008" published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC)
2. The Contract Data (Particular Conditions, Part A) as set out in C.1.2.1 below, and which provisions take preference over the General Conditions and Special Provisions; and
3. The Special Provisions (Particular Conditions, Part B) as set out in C.1.2.2 below, and which provisions take preference over the General Conditions.
4. A copy of the Nominated Subcontract will be made available to the MC for purposes of context and a better understanding of the Works.

**C1.2.1.2 ASSOCIATED CONTRACTS AND TERMINOLOGY**

The terminology used for the contracts and the various roles versus the FIDIC terminology is tabled and clarified below.

**TABLE 1: ASSOCIATED CONTRACTS AND TERMINOLOGY**

Contract Entity	Main Contract (MC) (CTROM Operations and Maintenance Contract)	Toll System Subcontract (NSC)	How these should be interpreted in this contract
<b>SANRAL</b>	<b>Employer</b>	Principal Employer	Employer
Main Contractor (MC) (Operations and Maintenance Contractor)	<b>Contractor</b>	Employer	Main Contractor
Toll System Subcontractor (NSC)	<b>Nominated Subcontractor (NSC)</b>	Contractor	Nominated Subcontractor (NSC)
Employer's Representative	<b>Employer's Representative</b>	Main Contractor's (MC) Representative	<b>Employer's Representative</b>
SANRAL MIS System Integrator			3rd Party- SANRAL MIS System Integrator (SI)
SANRAL Toll System Integrator			3rd Party- SANRAL Toll System Integrator

The Special Provisions (Particular Conditions, Part B) as set out in C.1.2.2 below, include clarifications and special stipulations to make the Conditions of Contract specific to this Contract.

All references to Main Contractor in the General Conditions, the Contract Data and the Special Provisions refer to this Contractor.



**C1.2.2 PART A: “PARTICULAR CONDITIONS: CONTRACT DATA**

<b>Clause No.</b>	<b>Condition Reference</b>	<b>Data</b>
1.1.24	Where the Contract allows for Cost Plus Profit, percentage profit to be added to the cost:	5%
1.1.26	Cut Off Date (number of days after the Time for Completion of Design-Build):	180 days
1.1.32	Employer’s name and address:	Means the South African National Roads Agency SOC Limited, instituted in terms of South African National Roads Agency Limited and National Roads Act (Act no 7 of 1998) or a person delegated by the South African National Roads Agency SOC Limited to act on its behalf. The Employer’s Address is: The South African National Roads Agency SOC Limited 48 Tambotie Avenue Val de Grace Pretoria 0184
1.1.35	Employer’s Representative name and address:	To be confirmed after award.
1.1.70	Parts of the Works that shall be designated a Section for the purposes of the Contract:	Contract Data for Sections is provided in Appendix 1 hereto.
	Operation Service Period:	Contract Data for Sections is provided in Appendix 1 hereto.
1.1.78	Time for Completion of Design-Build:	Contract Data for Sections is provided in Appendix 1 hereto.
1.3	Agreed methods of electronic transmission:	Virus protected E-mail
1.3	Address of Employer for communications:	The Regional Manager (Northern Region) The South African National Roads Agency SOC Ltd 38 Ida Street Menlo Park Pretoria, 0081
1.3	Address of Employer’s Representative for communications:	To be confirmed after award
1.3	Address of Contractor for communications:	To be confirmed after award
1.4	Contract shall be governed by the law of:	South Africa
1.4	Ruling language:	English
1.4	Language for communications:	English
2.1	After receiving the Letter of Acceptance, the Contractor shall be given access to all or part of the site within:	Contract Data on envisaged site access is given in Appendix 1 hereto.
4.2	Initial Performance Security during the design-built section 2: As an amount in currencies:	10% of the Design Build part of the Contract Amount at Base Date value and which shall be adjusted in accordance with Sub-Clauses 4.2 and 13.8

Clause No.	Condition Reference	Data
4.2	Performance Security during the Operation Service part of the Work: (due from the start of the Contract for the duration of the Operations Service)	25% of the highest monthly AGI from the previous 12 months at Base Date value and which shall be adjusted in accordance with Sub-Clauses 4.2 and 13.8
	Currency	ZAR (South African Rand)
5.1	Period of notification of errors, faults and other defects is:	21 days
5.2	Contractor's documents requiring approval:	Contract Data is tabled in Appendix 2 hereto.
6.5	Normal working hours on the Site:	With the exception of public holidays (including statutory election days) of the Country and necessary shift works pursuant to the Employer's Requirements and the Operation and Maintenance Plan, the normal working hours are: South African time (7:00 to 18:00) on Mondays to Fridays. For Toll Operations the working hours are 24 hours for 7 days
8.2	Period of the Operation Service:	
	Operation Service Period sections 1 and 3 at the Toll Plazas on the <b>N17 TOLL ROAD</b> commencing on the issuing of Commissioning Certificate for Design-Build: Section 1.	6 years
8.3	Software to be used for Contractor's time programmes:	Unless otherwise stated in the Employer's Requirements, appropriate Microsoft programming products shall be used.
9.2	Time for Completion of Design-Build of all Works:	Contract Data for Sections is provided in Appendix 1 hereto
9.6	Delay damages relating to Design-Build (amount per day of delay at Base Date value and which shall be adjusted in accordance with Sub-Clause 8.5):	Contract Data for Sections is provided in Appendix 1 hereto.
	<i>Note: If specified in the Employer's Requirements and in addition to the application of delay damages, programme performance adjustments may be applicable when the Contractor fails to achieve interim milestones on his time programmes.</i>	
9.6	Maximum Amount of delay damages:	10% of Value of Work for particular section
10.6 (a)	Maximum Compensation payable by Contractor (Amount):	10% of Contract Amount at Base Date value and which shall be adjusted in accordance with Sub-Clause 13.8
10.6 (b)	Maximum Compensation payable by Employer (Amount):	Limited to 10% of Contract Amount at Base Date value and which shall be adjusted in accordance with Sub-Clause 13.8
10.7 (b)	Rights of Employer if failure continues for more than 84 days:	In addition to the stated Conditions of Contract, the Employer shall also be entitled to:  (i) arrange for the performance of the relevant affected part of the Operation

Clause No.	Condition Reference	Data
		Service by another person at the Contractor's cost, or (iv) terminate the affected, relevant and appropriate part of the Operation Service by giving not less than 56 days' Notice, in accordance with Sub-Clause 15.2 [Termination for Contractor's Default]
14.2	Amount of Advance Payment (percent of Accepted Contract Price):	ZAR 0.00 (0%)
14.2	Currencies of Advance Payment if different to the currencies quoted in the Contract:	Not applicable
14.2	Percentage deductions for the repayment of the Advance Payment:	Not applicable
14.3 (c)	Retention deductions from Interim Payments during:	
	Design – Build Period .....	0%
14.3 (c)	Operation Service Period .....	0%
	Limit of Retention Money during:	
	Design – Build Period .....	ZAR 0.00
	Operation Service Period ..... <b>Note:</b> <i>The provisions for retention (deductions, retention money, maintenance retention fund, retention period, retention guarantee / bond and the like) is not applicable to the Contract.</i>	ZAR 0.00
14.6	Plant and Materials for payment when shipped and delivered to Site:	0%, This provision shall not be applicable to the Contract.
14.7	Minimum Amount of Interim Payment Certificate:	ZAR 0,00
14.9	Financing charges for delayed payment (percent points above discount rate):	2 % above the repo rate of the South African Reserve Bank
14.17	Currencies for payment of Contract Price:	ZAR (South African Rand) only
14.17	Proportions of Local and Foreign Currencies are:	
	Local.....	100 %
	Foreign.....	0 %
14.17	Payments of damages shall be:	
	Currency.....	ZAR (South African Rand)
	Proportion.....	100 %
14.19	Amount of Maintenance Retention Fund:	ZAR 0.00, This provision shall not be applicable to the Contract.
17.1 (b)	Operation of forces of nature allocated to the Contractor:	The Conditions of Contract shall be applicable.

<b>Clause No.</b>	<b>Condition Reference</b>	<b>Data</b>
17.8	Total liability of Contractor shall not exceed:	10% of the Accepted Contract Amount
19.2(a)(i)	Permitted deductible limits:	ZAR 100 000 per event at Base Date Value which shall be adjusted in accordance with Sub-Clause 13.8
19.2(a)(ii)	Additional sum to be insured:	15% of the value of the assets of the project.
19.2(a)4	Additional sum to be insured:	Contract Data is given in Appendix 3 hereto
19.2(a)4	Employer's Risk to be insured if different to Sub-Clause 17.1(b)(iii):	Contract Data is given in Appendix 3 hereto
19.2(a)5	Exceptional Risks to be insured if different to Sub-Clause 18.1(4):	Contract Data is given in Appendix 3 hereto
19.2(b)	Insurance of Contractor's Equipment (amount required):	An amount equal to the full replacement value thereof at Base Date Value and which shall be adjusted in accordance with Sub-Clause 13.8
19.2(c)	Amount of Professional Liability Insurance required:	Contractor to determine appropriate amount
19.2(c)	Period for which professional liability insurance required:	Up to the issuing of the Contract Completion Certificate
19.2(e)	Amount of insurance required for injury to employees and damage to property	Contractor to determine appropriate amount
19.3(a)	Insurance of the works:	As specified in Table 1 of Appendix 3 hereto and at full replacement value at Base Date and which shall be adjusted in accordance with sub-Clause 13.8 on an annual basis.
	Permitted deductible limits:	Employer's Equipment: As specified in Table 1 of Appendix 3 hereto
19.3(b)	Injury to any person and damage to property amount:	Contractor to determine appropriate amount
19.3(d)	Other insurances required by law and local practice:	Contract Data is given in Appendix 3 hereto
19.3(e)	Other optional Operational Insurances:	Contract Data is given in Appendix 3 hereto
20.3	Date for appointment of ad-hoc DAB.....	The date shall be a date within 28 days after the date of a Dispute Notice of either Party to the other Party
20.3	Selection list of DAB Chairperson:	Not applicable
20.4	The DAB shall comprise:	One (1) member
20.8	Appointing entity (official) for DAB members, if not agreed, shall be.....	President of the South African Institute for Civil Engineers or a person nominated by him/her
	Language of arbitration:	English
C3.3.5(d)	Environmental Management Plan (EMPC)	DEO means: Designated Environmental Officer.

Clause No.	Condition Reference	Data
<b>SECTION D</b>	<b>STAKEHOLDER AND COMMUNITY LIAISON AND TARGETED LABOUR AND TARGETED ENTERPRISES UTILISATION AND DEVELOPMENT</b>	
<b>D1002</b>	<b>DEFINITIONS AND APPLICABLE LEGISLATION</b>	
	D1002.01 Definitions	
	(r) Target Area(s)	For Targeted Labour: Ekurhuleni Metropolitan Municipality
	(w) Targeted Labour	<b>Targeted Group for Targeted Labour:</b> <b>a. black designated groups (As per latest PPPFA Regulations);</b> <b>b. black people;</b> <b>c. women;</b> <b>d. people with disabilities</b>
<b>D1003</b>	<b>TARGET GROUP PARTICIPATION</b>	
	D1003.04 Contract Participation Goal (CPG)	
	<b>CPG for Targeted Labour:</b>	Minimum of 10% of the Final Contract Value by the end of the contract to Targeted Labour. The Final Contract Value is defined in clause D1003.04
	Targeted Labour minimum contributions by the following Target Groups:	
	a. black designated groups; (i) Black people who are youth	30% of targeted labour value
	(ii) Black people who are persons with disabilities	0.5% of targeted labour value
	b. Black women;	30% of targeted labour value
	<b>CPG for Targeted Enterprise</b>	Minimum 30% subcontracting provisions apply according to the market analysis. The Final Contract Value is defined in clause D1003.04.
	Targeted Enterprise minimum contribution by the following Target Groups: i) Youth owned – min. 5% ii) Women owned – min. 5% iii) MV owned – min. 1% iv) Disabled owned – min. 0.5%	
	i). Targeted Enterprise with ≥51% ownership by Youth	No subminimum specified.
	ii). Targeted Enterprise with ≥51% ownership by Women	No subminimum specified.
	iii). Targeted Enterprise with ≥51% ownership by Military veterans	No subminimum specified.

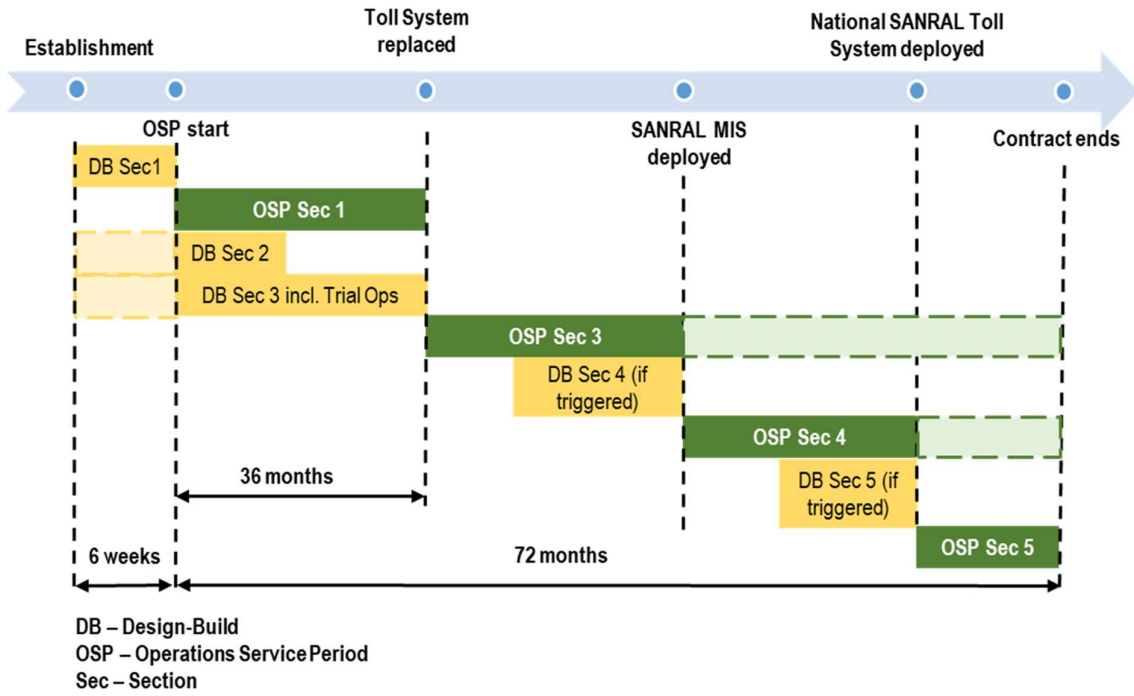
Clause No.	Condition Reference	Data
	iv). Targeted Enterprise with ≥51% ownership by Disabled persons (Differently abled)	No subminimum specified.
<b>D1008</b>	<b>WORK SUITABLE FOR EXECUTION BY TARGETED ENTERPRISES</b>	Toll System Maintenance and Toll Lane related maintenance work, plus any of the other categories of work listed in PART D.

### **C1.2.3 APPENDIX 1 TO CONTRACT DATA: SECTION DATA.**

#### **1. Design-Build Section data**

- 1.1. The summarized Design-Build Section data (definitions) tabled below shall also be read and construed in accordance with the Employer's Requirements and Schedule of Payments.
- 1.2. It shall be noted that the Design-Build works for the defined Sections shall be executed in a real time operational environment.
- 1.3. Sections 4 and 5 are subject to If-Triggered Notices and may or may not be implemented. The Contractor shall not be entitled to claim in case one or more Sections are not triggered by the Employer.
- 1.4. More than one Section may have to be executed in parallel, depending on the date of a Trigger Notice. The Contractor shall not be entitled to claim for additional time and cost in case the Sections are to be executed and/or performed simultaneously.
- 1.5. Section 1 is for the Contractor to establish and take over existing systems, operations, and maintenance activities. The Contractor shall be given access to the site on the Commencement Date.
- 1.6. Section 2 covers the Establishment Upgrades of the existing system handed over at Commencement Date.
- 1.7. Section 3 covers the provision of a new Toll System (hardware and software) during which the Contractor shall participate extensively in the planning, design, testing (including the performance of the trial operations testing by the Contractor), data migration, interfacing, switch-over, commissioning, etc, in order to sign-off and take-over the new Toll System for the purpose of operations. The Contractor shall perform the management, coordination, liaison and interface management during the replacement of existing Toll System.
- 1.8. Section 4 covers the provision of a SANRAL MIS interface. This section can overlap Sections 3 and 5. This will include inter-alia, interface management, liaison, cooperation, etc between all applicable third-party contracts during the development of the interface.
- 1.9. Section 5 covers the provision and deployment of a national SANRAL toll system. This Section can overlap with Section 3 or 4 during the migration period. This will include inter-alia, interface management, liaison, cooperation, etc between all applicable third-party contracts during the development.
- 1.10. The Section data tabled below is of a general nature and shall be interpreted in accordance with the corresponding or associated data as detailed in the Employer's Requirements. The data also refers to the general provisions for access to and possession of the applicable part of the Site pursuant to Sub-Clause 2.1 (Right of Access to the Site) of the Conditions of Contract. It further refers to the Employer's Assets to be taken over by the Contractor prior to the issue of a Section Commissioning Certificate and for the purpose of operations and maintenance thereof, pursuant to Sub-Clause 4.26 (Take-over of Employer's Assets) of the Conditions of Contract.
- 1.11. The Employer is entitled to re-allocate any part (subject that it is not material) of the Works, Design-Build and/or Operation Service of an earlier Section to a subsequent Section by notifying the Contractor at a reasonable period in advance. Notwithstanding any other contrary provision of the Contract, the execution of this entitlement shall not give rise to any Contractor's claim for delay and additional cost [pursuant to Sub-Clause 20.1 (Contractor's Claims) of the Conditions of Contract] in relation thereto.

**Figure 1: Graphical representation of Design Build and Operation Service Sections**





**TABLE 2: APPENDIX TO CONTRACT DATA**

Section no	Design-Build Section definition	Section Start date	Time for completion (days)	Delay damages (per day)	Section Commissioning Certificate	Cut-off date (days)	Retention
<i>Sub-Clause references</i>		1.1.6, 8.1, 9.1	1.1.78, 8.2; 9.2	8.5; 9.6	1.1.71, 11.5, 11.7	1.1.26, 9.13	1.1.66
<b>1</b>	Establishment period.	Commencement Date	42 days	N/A	Yes	90 days	N/A
<b>2</b>	Keep existing compliance level: Functional Compliance with the 2010 CTROM requirements plus Establishment Upgrades	Section 1 Commissioning (Contractor can start earlier at Commencement Date)	360 days	Refer Section 6 of V2B6a	Yes	90 days	N/A
<b>3</b>	The supply of a complete Toll System, including additional items detailed in V3B1. (This section runs in parallel with Section 2 and contains the following sub-sections 3.1 to 3.9)	Section 1 Commissioning (Contractor can start earlier at Commencement Date)	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.1</b>	AVC/DCS:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.2</b>	Dedicated ETC lane:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.3</b>	ANPR:	Section 1 Commissioning	1080days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.4</b>	Bank card processing:	Section 1 Commissioning	1080days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.5</b>	Cash processing:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.6</b>	Discount and concessions:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.7</b>	Incident control:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.8</b>	VGS system:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A
<b>3.9</b>	QLS and QL system:	Section 1 Commissioning	1080 days	Refer Section 6 of V2B6a	Yes	180 days	N/A

Section no	Design-Build Section definition	Section Start date	Time for completion (days)	Delay damages (per day)	Section Commissioning Certificate	Cut-off date (days)	Retention
4	The deployment of the SANRAL MIS interface. (If triggered item).	Date stated in trigger Notice	180 days	Refer Section 6 of V2B6a	Yes	90 days	NA
5	The deployment of the national SANRAL Toll System. (If triggered item)	Date stated in trigger Notice	240 days	Refer Section 6 of V2B6a	Yes	90 days	NA

## **2. Operation Service Period Section Data**

- 2.1. The Operation Service Period Sections are as defined in Item 2 of this Appendix 1 and as shown in Figure 1. Each Design Build Section have its own specific Operation Service requirements, and for this purpose separate Operation Service Periods are defined.

Each OSP Section shall only commence after the completion of the Trial Operations and System Compliance verification. The previous OSP Section shall continue whilst DB for the following Section is not commissioned.

- 2.2. Operation Service Period Section 1 (OSP Sec 1) is for the operations and maintenance of Design Build Section 1.

- 2.3. The Contractor shall perform the Operation Service for OSP Sec 1 in accordance with Sub-Clause 10 (Operation Service).

The commencement of OSP Sec 1 shall follow on the commissioning date of Design Build Section 1.

The scope of OSP Sec 1 shall be as described in PART C3 and include all the work required to perform the operations and maintenance of the handed over Toll System and any upgrades.

- 2.4. There is no Operation Service Period Section 2 (OSP Sec 2). OSP Sec 1 shall continue until both Design Build Sections 2 and 3 are commissioned.

- 2.5. Operation Service Period Section 3 (OSP Sec 3) is for the operations and maintenance of Design Build Sections 2 and 3.

- 2.6. The Contractor shall perform the OSP Sec 3 in accordance with Sub-Clause 10 (Operation Service).

The commencement of OSP Sec 3 shall follow on the commissioning date of Design Build Section 3.

The scope of OSP Sec 3 shall be as described in PART C3 and include all the work required to design, build and implement a new Toll System.

- 2.7. The Contractor shall perform the OSP Sec 4 in accordance with Sub-Clause 10 (Operation Service).

The commencement of OSP Sec 4 shall follow on the commissioning date of Design Build Section 4.

The scope of OSP Sec 4 shall be as described in PART C3 and include all the work required to design, build and implement a SANRAL MIS.

- 2.8. The Contractor shall perform the OSP Sec 5 in accordance with Sub-Clause 10 (Operation Service).

The commencement of OSP Sec 5 shall follow on the commissioning date of Design Build Section 5.

- 2.9. The scope of OSP Sec 5 shall be as described in PART C3 and include all the work required to design, build and implement a National SANRAL Toll System.

- 2.10. The Section data tabled here and in figure 1 is of a general nature and shall be interpreted in accordance with the corresponding or associated data as detailed in the Employer's Requirements.

- 2.11. The Employer is entitled to re-allocate any part (subject that it is not material) of the Works, Design-Build and/or Operation Service of an earlier Section to a subsequent Section by notifying the Contractor at a reasonable period in advance. Notwithstanding any other contrary provision of the Contract, the execution of this entitlement shall not give rise to any Contractor's claim for delay and additional cost [pursuant to Sub-Clause 20.1 (Contractor's Claims) of the Conditions of Contract] in relation thereto.

#### **C1.2.4 APPENDIX 2 TO CONTRACT DATA: APPROVAL DATA**

The Contractor's Documents requiring approval pursuant to Sub-Clause 5.2 and the provisions and requirements of the Contract include:

- C1.2.4.1 All Contractor's documentation related to his quality assurance system, OHS and environmental plans,
- C1.2.4.2 The functional specifications, testing procedures, software executable release plans and as-built documentation in relation to the Design-Build,
- C1.2.4.3 The Operation and Maintenance Plan,
- C1.2.4.4 The Operation and Maintenance Manuals related to the Operation Service,
- C1.2.4.5 The Maintenance Manuals related to the Maintenance and Support Services,
- C1.2.4.6 Design-Build documents requiring approval in terms of the Employer's Requirements, and
- C1.2.4.7 Operation Service documents requiring approval in terms of the Employer's Requirements.

## **C1.2.5 APPENDIX 3 TO CONTRACT DATA: INSURANCE DATA**

### **APPENDIX 3 TO CONTRACT DATA**

#### **INSURANCE DATA**

Delete the entire Clause 19 and replace with the following:

##### **19.1 Contractor's Insurance**

Without in any way limiting or derogating from the obligations, liabilities or responsibilities of the Contractor, the Contractor shall effect and maintain for the duration of this Contract such insurances as the Contractor considers sufficient to adequately cover its risks and liabilities and obligations associated with this Contract.

All such insurances shall be effective from the Commencement Date and maintained in force until the Termination Date or Contract Completion Certificate, as applicable.

Within 14 (fourteen) days of the Commencement Date, or as stated in the Contract Data and on the annual anniversary of this Contract and at any other time, during the existence of this Contract, as required by the Employer the Contractor shall submit to the Employer for the Employer's approval, which shall not be unreasonably withheld, detail of all such insurances, existing or proposed. The approval of the Employer shall not in any way constitute a waiver to any of its rights in terms of the Contract and the Contractor shall at all times comply fully with its obligations under this Contract.

Such detail shall as a minimum, in respect of each separate insurance, include:

- a) confirmation and proof that the Employer is named as an additional insured under the policies;
- b) the extent to which the Employer is indemnified by the insurance;
- c) confirmation that a "cross liability" clause is included;
- d) the identity of the insurers and re-insurers;
- e) a description of the cover provided, with detail of the principal extensions of cover;
- f) where relevant, a description of the insured property;
- g) the relevant period of insurance, showing the next renewal date;
- h) the sums insured and/or indemnity limits and whether these apply per occurrence of indemnifiable loss or for the period of insurance;
- i) the amount and application of deductibles/excesses/first amounts payable;
- j) the principal exclusions;
- k) an undertaking from the Insurers that any:
  - i) restriction or limitation of the cover provided;
  - ii) change to the period of insurance;
  - iii) reduction in the sums insured and/or limits of indemnity or;
  - iv) notice of cancellation or non-renewal will be provided to the Employer at least 60 (sixty) days before the effective date of such event;
- l) an undertaking pursuant to Clause 19.1(k) from the Contractor's insurance brokers.

Whenever so required by the Employer, the Contractor shall provide to the Employer:

- a) full copies of such insurances; and
- b) evidence or proof of any or all premium payments.

Details of insurance effected by the Employer in respect of the Employer Fixed Assets, Permanent Design-Build Assets provided by the Employer, and the cover that will be available to the Contractor is detailed in

Clause 19.5. The Contractor shall be liable for all deductibles latent to these insurances. The Contractor shall determine the amount of the deductibles applicable under this insurance and shall review the scope and extent of cover available under the Employer's insurance at each renewal date.

The Contractor's Third-Party Liability insurance shall provide protection against all third party claims arising out of or in connection with any activities relating to the Works including, inter alia:

- a) loss, destruction or damage to real or personal property;
- b) obstruction, loss of amenities, loss of use of land, water, building, property or right of way;
- c) liability that may result from latent defects or removal or weakening of support to property;
- d) injury to, or disease or death of persons; and
- e) legal costs of insured parties in respect of claims.

The principal classes of insurance for consideration by the Contractor should include Public Liability, Professional Indemnity, Assets All Risks, Electronic Equipment, Business Interruption, Money, Fidelity Guarantee and Sasria perils.

The Contractor shall review the scope and extent of cover limits to cater for any relevant change in the exposures to loss damage or liability on either each annual anniversary of the Commencement Date of the Contract or the anniversary of the relevant insurances. Any proposed changes to the insurances arising from such review shall require the approval of the Employer.

The Contractor shall comply and ensure that its sub-contractors of all tiers comply with the terms and conditions of all insurances effected in accordance with this sub-clause 19 and the procedures for claims notification and registration thereunder and shall do nothing or omit to do anything which might prejudice such insurances.

The Contractor shall submit the declaration of insurance.

#### **PCC19.2 The Employer's Right to Insure**

If the Contractor fails or refuses to comply with its obligations under this Clause 19, the Employer shall, without prejudice to any of its rights hereunder or otherwise and subject to giving the Contractor prior notice allowing the Contractor a reasonable period not exceeding 14 (fourteen) days to comply with such obligations, be entitled to affect such insurances itself and recover the premiums and all reasonable administrative and other expenses of doing so by calling on the Performance Security and/or from the Contractor as a debt.

#### **PCC19.3 Notification of Claims**

The Contractor shall give the Employer immediate notification (with a copy to the Employer's Representative) of any claim under any of the insurances effected in accordance with this Clause 19 and provide, at its own cost, to the Employer copies of all exchange of correspondence between the Contractor and the insurers and/or loss adjusters in regard to any ongoing or intended claims under any such circumstances.

#### **PCC19.4 Contractor's obligation to restore the Site**

Subject to the provisions of the Employers Requirements, if any loss or damage to the Site or any part thereof is occasioned by any one or more of the perils insured against by the insurances referred to in this Clause 19, the Contractor shall, notwithstanding that settlement of any insurance claim has not been completed, with due diligence, repair or replace the Site, remove and dispose of any debris and proceed with the execution of the Works in accordance with this Contract.

The Contractor shall indemnify and keep indemnified the Employer against all loss or claims arising out of the default of or failure by the Contractor to comply fully with its obligations under Clause 19. Without prejudice to

any right or remedy that the Employer may have in law or in terms of this Contract, the Employer shall be entitled to call on the Performance Security.

#### **PCC 19.5: Employer's Insurance**

Details of insurance effected by the Employer in respect of the Employers Facilities, Permanent Design-Build Assets and Equipment provided by the Employer, shall be provided at the Commencement date of the Contract.

In general, the Employer's insurance covers all Employer facilities, provided by and/or replaced by the Employer and/or the Contractor, for the duration of the contract. The deductible for each and every loss, per incident/event shall be payable by the Contractor to the Employer. There is no premium payable by the Contractor for this cover.

The Assets All Risks Insurance Policy effected by the Employer covers all Permanent Design-Build Assets sub-clause provided and/or replaced by the Employer and/or Contractor for the duration of the contract. The deductible for each and every loss is payable by the Contractor. The policy may include an increased deductible in respect of accidental damage or through negligence by the Contractor and/or Subcontractor/Agents. There is no premium payable by the Contractor for this cover.

The Finite and Assets All Risks Insurance Policies which are renewable annually currently provide protection against loss of or damage to the Employer property caused by perils including, but not limited to fire, lightning, explosion, storm, tempest, flood, earthquake, impact, and such risks and perils as are insurable by the South African Special Risks Insurance Association. The deductibles and/or policy coverage may change on an annual basis and it is incumbent on the Contractor to establish whether there have been any changes to the deductibles and/or policy coverage on an annual basis as the Contractor will in the event of an admissible claim be responsible for the payment of the policy deductible.

**Table 2: EMPLOYER'S EQUIPMENT**

<b>Asset</b>	<b>Replacement value</b>	<b>Max Deductible</b>
Hardware, Software and equipment, excluding NSC insurance responsibility	R 90 million	R100,000
Software	Included in above amount.	R100,000

The Contractor shall be included as an additional insured in terms of the Employer Insurance Policies.”

### **C1.3 PART B: PARTICULAR CONDITIONS SPECIAL PROVISIONS**

#### **C1.3.1 PART B: THE PARTICULAR CONDITIONS OF CONTRACT: SPECIAL PROVISIONS**

Notes to tenderer:

The International Federation of Consulting Engineers (“FIDIC”), Conditions of Contract for Design, Build and Operate Projects, First Edition 2008 (“GCC”), shall apply to this Contract. The amendments and additions as set out below shall constitute the Special Provisions and shall be read in conjunction with the GCC. In the event of any conflict between the provisions of GCC and these Special Provisions, the Special Provisions shall prevail.

The following additions and amendments shall be made to the GCC. References to clause numbers are as they appear in the GCC.

##### **SUB-CLAUSE 1.1.2: “ASSET REPLACEMENT FUND”**

Insert a second sentence to the definition:

*“In the case of no Contract Data provided under this sub-clause 1.1.2, specifically confirming applicability, the Asset Replacement Fund and associated contractual provisions shall not apply to the Contract.”*

##### **SUB-CLAUSE 1.1.3: “ASSET REPLACEMENT SCHEDULE”**

Insert a second sentence to the definition:

*“In the case of no Contract Data provided under this sub-clause 1.1.3, specifically confirming applicability, the Asset Replacement Schedule and associated contractual provisions shall not apply to the Contract.”*

##### **SUB-CLAUSE 1.1.8: “COMMISSIONING CERTIFICATE”**

Insert the following at end of the definition:

*“... the commencement of the Operations Service Period, if applicable.”*

##### **SUB-CLAUSE 1.1.10: “CONTRACT”**

After ‘Letter of Acceptance’ on the last line of the paragraph add the following wording:

*“... and any subsequent written supplementary agreement or amendment mutually agreed and legitimately signed by the Parties”.*

##### **SUB-CLAUSE 1.1.15: “CONTRACT PERIOD”**

Delete this definition and replace with the following wording:

*“means the period from the date notified under sub-clause 8.1 [commencement date] to the date stated in the Contract Completion Certificate.”*

##### **SUB-CLAUSE 1.1.30: “DESIGN-BUILD PERIOD”**

Delete the definition under this sub-clause and replace with the following wording:

*“means the period from the Commencement Date to the date stated in the Contract Completion Certificate at the end of the Contract Period or the date stated in the last section Commissioning Certificate to be issued under the Contract. Each Design-Build section shall have its own period of Design-Build or “Time for Completion” as defined in the Contract Data and on Completion of a Section Commissioning Certificate shall be issued for each section. The Section Commissioning Certificate shall state the actual date of completion*



of the relevant section. The Section Design-Build periods shall run concurrently with the Operation Service Period.

**SUB-CLAUSE 1.1.36: “EMPLOYERS REQUIREMENTS”**

Delete the definition under this sub-clause and replace with the following wording:

*“means all the books of Volume 2 (entitled Employers Requirements) of the Contract as may have been amended and/or expanded pursuant to Volume 3 and Volume 4 of the Contract and any additions and modifications made thereto in accordance with the Contract. Such documents specify the purpose, scope and/or design and/or other technical criteria for the execution of the works and provision of operation services.”*

**SUB-CLAUSE 1.1.43: “FINANCIAL MEMORANDUM”**

Insert a second sentence to the definition:

*“In the case of no Contract Data provided under this sub-clause 1.1.43, specifically confirming applicability, the Financial Memorandum and associated contractual provisions shall not apply to the Contract.”*

**SUB-CLAUSE 1.1.48: “LETTER OF ACCEPTANCE”**

After the heading insert the following words:

*“Letter of Acceptance or Form of Acceptance” means the letter.”*

**SUB-CLAUSE 1.1.49: “LETTER OF TENDER”**

After the heading insert the following words:

*“Letter of Tender or Form of Offer” means the document*

**SUB-CLAUSE 1.1.51: “MAINTENANCE RETENTION FUND” AND “MAINTENANCE RETENTION GUARANTEE”**

Insert a second sentence to the definition:

*“In the case of no Contract Data provided under this sub-clause 1.1.51, specifically confirming applicability, the Maintenance Retention Fund and Maintenance Retention Guarantee and associated contractual provisions shall not apply to the Contract.”*

**SUB-CLAUSE 1.1.58: “OPERATION SERVICE PERIOD”**

Delete this definition and replace with the following:

*“means the period commencing on the date contemplated in the Section Commissioning Certificate in respect of Section 1 stipulated in the Contract Data and ending third (3<sup>rd</sup>) anniversary of the commencement of the Operation Service Period, - Section 1 unless extended by the Employer in accordance with sub-clause 10.8 [Completion of Operation Service Period].“*

**SUB-CLAUSE 1.1.65: “RETENTION MONEY”**

Insert a second sentence to the definition:

*“In the case of no Contract Data provided under this sub-clause 1.1.65, specifically confirming applicability, Retention Money and associated contractual provisions shall not apply to the Contract.”*

**SUB-CLAUSE 1.1.66: “RETENTION PERIOD”**

Insert a second sentence to the definition:

*"In the case of no Contract Data under this sub-clause 1.1.66, specifically confirming applicability, the Retention Period and associated contractual provisions shall not apply to the Contract."*

**SUB-CLAUSE 1.1.78: "TIME FOR COMPLETION OF DESIGN-BUILD"**

Insert after the words 'Commencement Date' the following additional wording:  
*"or any other date(s) stipulated in the Contract Data"*

**SUB-CLAUSE 1.1.72: "SITE"**

Add a second sentence to the definition:

*"The extent of the site for the Design-Build and for Operation Service Period shall include the toll plazas with associated assets and is indicated in the drawings included in the Employer Requirements."*

**SUB-CLAUSE 1.1.82: "WORKS"**

Delete this definition and replace with the following:

*"means the Permanent Works [including assets related to plant, materials and Contractor's documents as appropriate] and Temporary Works [including assets relating to temporary Contractor's facilities, pursuant to Sub-clause 1.16 [Project Assets] or either of them as appropriate and the facility [including assets relating to Employer's Facilities and Contractor's facilities as appropriate, pursuant to sub-clause 1.16 (Project Assets)] to be operated by the Contractor during the Operation Service Period."*

After Sub-clause 1.1.83, insert the following new definitions:

**"SUB-CLAUSE 1.1.84: EMPLOYER'S DOCUMENTS:** *means the calculations, computer programs and other software, drawings, manuals, models and other documents supplied by the Employer under the Contract; which are also referred to in sub-clause 1.12 [Contractor's Use of Employer's Documents] and sub-clause 1.16 [Project Assets] and as detailed in the Employer's Requirements;"*

**"SUB-CLAUSE 1.1.85: EMPLOYER'S FACILITIES:** *means those facilities made available by the Employer to the Contractor for purposes of the Works and the Operation Service and includes the Employer's Fixed Assets, Employer's Equipment and Employer's Documents; which facilities are also referred to in sub-clause 1.16 [Project Assets], sub-clause 4.26 [Use of Employer's Facilities] and as detailed in the Employer's Requirements;"*

**"SUB-CLAUSE 1.1.86: EMPLOYER'S FIXED ASSETS:** *means generally but not necessarily, the Employer's fixed type of infrastructure associated with civil works, structural works, building, electrical and mechanical assets and as detailed in the Employer's Requirements."*

**"SUB-CLAUSE 1.1.87: NOMINATED SUBCONTRACTOR** *means any person named in the Contract as a Nominated Subcontractor, or any person appointed as a Nominated Subcontractor, for a part*

of works; and the legal successor in title to each of these persons.”

**SUB-CLAUSE 1.2: “INTERPRETATION”**

At the end of this sub-clause 1.2, insert the following sentence:

*“Reference to a person shall include a natural person, a juristic person and any unincorporated association.”*

**SUB-CLAUSE 1.3: “NOTICES AND OTHER COMMUNICATIONS”**

At the end of this sub-clause 1.3, insert the following paragraph:

*“Any notice, consent, approval, certificate or determination by any person shall not be deemed to have been given or issued by virtue of its appearance in the minutes of any meeting or in the content of an e-mail message. For the avoidance of doubt, e-mail messages, although permitted for the purposes of informal communications, shall not constitute contractual correspondence or be used to gain benefit under the Contract.”*

**SUB-CLAUSE 1.5: “PRIORITY OF DOCUMENTS”**

Delete the wording under this sub-clause and replace with the following:

*“The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents, as may have been amended during tender stage, shall be in accordance with the following sequence:*

- a) The Contract Agreement (if any);
- b) The Letter of Acceptance; [ Form of Acceptance]
- c) The Letter of Tender; [Form of Offer]
- d) The Particular Conditions Part A – Contract Data;
- e) The Particular Conditions Part B – Special Provisions;
- f) The General Conditions;
- g) Any additions or modifications to the Employer’s Requirements pursuant to Volume 3 and Volume 4 of the Contract.
- h) Volume 2 entitled “Employer’s Requirements”, which for purposes of interpretation shall be in accordance with the following sequence –
  - i) *Volume 2 Book 1a – Standard Specification for Operations and Maintenance of CTROM Projects: Part A: Glossary of Terms and Part B: Generic Scope of Works*
  - ii) *Volume 2 Book 2a – Standard Specification for Operations and Maintenance of CTROM Projects: General*
  - iii) *Volume 2 Book 7a - Standard Specification for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items*
  - iv) *Volume 2 Book 6a - Standard Specification for Operations and Maintenance of CTROM Projects: Performance Measurement*
  - v) *Volume 2 Book 8a - Standard Specification for Operations and Maintenance of CTROM Projects: ETC Interoperability – Business Rules*
  - vi) *Volume 2 Book 4a – Standard Specification for Operations and Maintenance of CTROM Projects: Toll Systems*

- vii) *Volume 2 Book 5 – Standard Specification for Operations and Maintenance of CTROM Projects: Electronic Toll Collection (ETC)*
- viii) *Volume 2 Book 3 – Standard Specification for Operations and Maintenance of Toll Projects: Electrical and Mechanical Equipment*
- i) The Schedules of Payment/Cost Matrix; and
- j) The Contractor's Proposal.

*If an ambiguity or discrepancy is found in the documents, the Employer's Representative shall issue any necessary clarification or instruction, save that where this relates to the Employer's Requirements; the following principles shall also apply:*

- i). *If any provision of the Employer's Requirements imposes a standard or duty that is more onerous than, or additional to that imposed by another provision of the Employer's Requirements, this will not be considered as an error, inconsistency, discrepancy or ambiguity and the relevant standard or duty will be treated as cumulative, failing which the more onerous standard or duty will apply;*
- ii). *If any ambiguity or discrepancy is found between a provision in one book and a provision of another book of the Employer's Requirements, the provision of the book with the highest priority shall prevail, unless the application of the provision in the other book will, as clarified or instructed by the Employer's Representative, result in a higher standard and/or will result in Works or Operation Service which are most beneficial to the Employer, then in such circumstances the provision of the other book shall prevail;*
- iii). *If any ambiguity or discrepancy is found between the provisions of any single book of the Employer's Requirements, the provisions which results in a higher standard and/or result in Works or Operation Service which is safer or more conservative and/or will result in works which are most beneficial to the Employer shall prevail;*
- iv). *The aforementioned shall not constitute an error in the Employer's Requirements for purposes of Clause 1.10 and the provisions thereof shall not apply hereto and accordingly such ambiguity or discrepancy shall be resolved solely by the necessary clarification or instruction issued by the Employer's Representative;*
- v). *The Contractor having had the opportunity to negotiate the Employer's Requirements (where applicable), the contra preferentum rule shall not be applied in the interpretation of the Employer's Requirements.*

*No above-mentioned ambiguity or discrepancy shall vitiate this Contract."*

**SUB-CLAUSE 1.9: "CARE AND SUPPLY OF DOCUMENTS"**

At the end of the sub-clause insert new paragraphs which read as follows:

*"In case of Contractor's Documents which are in the form of computer programs and other software, the Contractor shall place and maintain the same in ESCROW, in accordance with the Employer's Requirements.*

*In the case of Employer's Documents and/or in the case of expansions, upgrades, replacements, modifications and the like to Employer's Documents (as part of the Contractor's Design-Build and / or Operation Service*

obligations), which Employer's Documents are in the form of computer programs and other software, the Contractor shall place and maintain the same in ESCROW, in accordance with the Employer's Requirements.

*In the case of integrated computer program and other software systems, consisting of Employer's Documents and Contractor's Documents, such integrated software systems shall be placed and maintained in ESCROW by the Contractor, in accordance with the Employer's Requirements."*

**SUB-CLAUSE 1.11: "EMPLOYER'S USE OF CONTRACTOR'S DOCUMENTS"**

At the end of paragraph 2 of this sub-clause and after sub-paragraph (d) insert the following:

*"and;*

- (e) enable the Employer to take over the whole or part of the Works and effectively operate and maintain the Works or any part thereof; and*
- (f) enable the Employer, at the end of the Operation Service Period, to appoint any other person/s for purposes of effectively operating and maintaining the Works or any part thereof; and*
- (g) transfer to the Employer the right to the use and/or licenses in respect of any computer programs, software, design documents, codes and information of which a party, other than the Contractor, holds proprietary rights and/or copy right to enable the Employer to effectively operate and maintain the Works or to appoint another person/s to operate and maintain the Works or any part thereof; and*
- (h) enable the Employer to incorporate any other toll roads or associated national systems, in the Republic of South Africa, into the Works."*
- (i) The Employer may, at an agreed fee, purchase the source code so that it includes a perpetual license in favour of SANRAL, which license shall include the entirety of the current and future SANRAL toll routes*
  - (i) License fees in respect of any additions or extensions beyond the scope of the current Contract shall be negotiated at that time.*
  - (ii) SANRAL shall have the right to use, modify, implement, support and/or maintain the Software as it sees fit for use at any of its entirety of the current and future SANRAL toll routes.*
  - iii) The Contractor shall be afforded the first option to quote on future modification, implementation, support and/or maintenance of the Software; however, the appointment of a service provider to perform any works in respect of the Software shall be at SANRAL's sole discretion.*
  - (iv) The Contractor shall have the right of commercial use of the adapted Software (locally and internationally).*
  - (v) Intellectual Property shall remain vested in the Contractor.*

**SUB-CLAUSE 1.12: "CONTRACTOR'S USE OF EMPLOYER'S DOCUMENTS"**

Insert the following new paragraphs at the end of this sub-clause 1.12 that read:

*“In the case of Employer’s Documents which are in the form of computer programs and other software, the Contractor shall:*

*take-over, operate, maintain, resolve defects, modify, expand, replace, dispose, upgrade and hand-back such documents in accordance with the Operating License, and relevant parts of the Conditions of Contract and the Employer’s Requirements; and*

*in the case of access by the Contractor to such documents be restricted or prevented, in relation to proprietary and intellectual / copy rights of other parties, then the Contractor shall perform and implement all things necessary at his expense to ensure compliance to the Conditions of Contract and the Employer’s Requirements. For the avoidance of doubt, such case shall not imply any excuse, or right to claim, or relieve for the Contractor being unable to meet the associated risks, liabilities, obligations and Employer’s Requirements under the Contract.”*

After Sub-clause 1.15, insert a new Sub-clause 1.16 with the following wording:

**“SUB-CLAUSE 1.16: PROJECT ASSETS”**

*The complete project assets consist of:*

**(a) Employer’s Facilities**

*The Employer’s Facilities are those on-Site assets, whether of a permanent or temporary nature, made available by the Employer to the Contractor for purposes of the Works and the Operation Service under the Contract. The Employer’s Facilities are those taken over and used by the Contractor in accordance with sub-clause 4.26 [Use of Employer’s Facilities], are detailed in the Employer’s Requirements and consist of:*

- (i) **Employer’s Fixed Assets** (as defined in the Conditions of Contract and generally, but not necessarily, of a fixed asset type),*
- (ii) **Employer’s Equipment** (as defined in the Conditions of Contract and generally, but not necessarily, of a semi-fixed asset type and/or hardware system nature), and*
- (iii) **Employer’s Documents** (as defined in the Conditions of Contract and generally, but not specifically, of a documentation and software system asset type); and*

**(b) Permanent Design-Build assets**

*The permanent Design-Build assets are generally on-Site assets and are those assets designed, built, operated and handed back (at the end of the Contract Period) by the Contractor for the purposes of the Works and Operation Service under the Contract, as specified and detailed in the Employer’s Requirements and consist of:*

- (i) **Plant** (as defined in the Conditions of Contract and generally, but **not** necessarily, of a semi-fixed asset type and/or hardware system nature),*
- (ii) **Materials** (as defined in the Conditions of Contract and including assets such as the levels of spares, as specified in the Employer’s Requirements or provided in accordance with **recognized good practice for the purpose of maintaining Employer’s Facilities, Plant and Contractor’s Documents**), and*

- (iii) **Contractor's Documents** (as defined in the Conditions of Contract and generally, but not necessarily, of a documentation and software system **asset type**); and

**(c) Contractor's facilities**

*The Contractor's facilities include all other facilities / assets, whether of a permanent or temporary nature and whether on or off Site [in addition to those listed under this sub-clause 1.16 (a), (b) and (d)] made available by the Contractor and required to complete the Works and to perform the Operation Service under the Contract.; and*

- (d) **Contractor's Equipment** (as defined in the Conditions of Contract and generally, but not necessarily, of a movable asset type)."

**"SUB-CLAUSE 1.8 ASSIGNMENT**

*Replace the whole clause with the following:*

**"1.8 Assignment**

*Neither Party shall assign the whole or any part of the Contract and may not transfer its rights and obligations in or under the Contract.*

*However, either Party may, Cession its right to payment of any moneys due, or to become due, under the Contract, only in the event that:*

- (a) *the Cession is in favour of a registered Financial Services Provider (FSP) or a State Institution established for the express purpose of providing funding to businesses and entities; and*
- (b) *the written request for Cession is made by the Party and not a third party; and*
- (c) *the written request by the Party is accompanied by a cession agreement; and*
- (d) *the other Party agrees to the Cession."*

**SUB-CLAUSE 2.1: "RIGHT OF ACCESS TO THE SITE"**

*At the end of paragraph 1, insert the following:*

*"The Contractor shall liaise and fully co-operate with any other contractor appointed by the Employer, in order to gain access to the Site or any part thereof."*

*After paragraph 2, insert the following:*

*"The Contractor shall not, whether directly or indirectly, cause the closure of any public road or any lanes forming part of a public road. If and when the Contractor requires access to the Works or any part thereof which will necessitate the closure of a public road or lanes forming part of a public road, he shall notify the Employer's Representative, who shall, as soon as is reasonably possible, arrange for the closure of such road or lanes as is reasonably necessary to allow access to the Site or part thereof."*

**SUB-CLAUSE 4.2: "PERFORMANCE SECURITY"**

*Replace the wording of the second paragraph under this sub-clause 4.2 with:*

*"For the Design Build Performance Security, the following shall apply:*

*The Contractor shall renew the Performance Security whenever the amount of it changes due to the contractual requirements. The amount of the Performance Security shall have been adjusted, not later than 90 (ninety) days on each anniversary of the Commencement Date in accordance with sub-clause 13.8 [Adjustments for changes in Costs].*

*For the Operation Service Performance Security, the following shall apply:*

*The Performance Security includes all guarantees / bonds and the like and the renewals, replacements or extensions thereof as required to meet the Performance Security obligations and requirements.*

*The Contractor shall renew the Performance Security whenever the amount of it changes due to the contractual requirements. The amount of the Performance Security shall have been adjusted, not later than 90 (ninety) days on each anniversary of the Commencement Date in accordance with sub-clause 13.8 [Adjustments for changes in Costs] but in any event the value of the Performance Security after adjustment shall not be less than 25 (twenty-five percent of the amount of the highest monthly income for the preceding year.”*

Replace the wording of the fourth paragraph under this sub-clause 4.2 with:

*“The Contractor shall ensure that the Performance Security remains valid and enforceable until 120 days after the date of the issue of the Contract Completion Certificate or 90 days after the Date of Termination.*

*Failure by the Contractor to maintain the validity of the Performance Security shall be grounds for termination in accordance with sub-clause 15.2 [Termination for Contractor’s Default].*

Replace the wording in sub-clause 4.2 (a) with:

*“ (a) in the case of a renewal, extension or replacement of the Performance Security required to meet the Performance Security obligations and requirements and failure by the Contractor to renew, extend or replace such Performance Security prior to a date determined at, 21 days prior to the expiry or invalidity of the Performance Security, in which event the Employer may claim the full or, in case of an earlier reduction, the reduced amount of the Performance Security;”*

Below sub-paragraph (d), insert a new sub-paragraph (e) with the following wording:

*“or circumstances which entitle the Employer under sub-clause 12.1 (Completion of Outstanding Work and Remedying Defects).”*

Replace the wording of the last paragraph in this sub-clause 4.2 with:

*“The Employer shall return the Performance Security to the Contractor within 21 days after the valid expiry date(s) thereof.”*

**SUB-CLAUSE 4.4: “SUBCONTRACTORS”**

At the end of sub-clause 4.4, insert the following:

*“Every subcontract entered into between the Contractor and any Subcontractor shall contain the following provisions:*

- a) the Contractor shall be entitled to cede and assign and make over all its rights and obligations in terms of the subcontract in favour of the Employer and shall notify the Subcontractor within 21 days of entering into any cession or assignment; and*
- b) The Subcontractor shall be deemed, by signing this subcontract, to give the Contractor and the Employer a non-terminable, transferable, non-exclusive royalty free license to copy, use and communicate the Subcontractor’s documents for purposes of the Works and the Operation Service. This license shall:*



- c) *apply* throughout the actual or intended working life (whichever is the longer) of the relevant part of the Works; and
- d) *entitle* any person, in lawful possession of the relevant part of the Works, to copy, use and modify the Subcontractor's documents for purposes of completing, operating, maintaining, altering, adjusting, repairing and/or demolishing the Works; and
- e) *in* the case of the Subcontractor's documents, which are in the form of computer programs and other software, permit the use thereof on any computer on the Site, or any other place envisaged in this Contract, including the replacement, upgrading or expansion of any software supplied by the Contractor and/or the Employer; and
- f) *enable* the Contractor to transfer all rights to the Employer and enable the Employer to re-let the Contract; and
- g) *enable* the Employer to take over the whole or part of the Works and effectively operate and maintain the Works or any part thereof; and
- h) *enable* the Employer, at the end of the Operation Service Period, to appoint any other person/s for purposes of effectively operating and maintaining the Works or any part thereof; and
- i) *transfer* to the Employer the licenses and/or the right of use in respect of any computer programs, software, design documents, codes and information of which a party, other than the Subcontractor, holds proprietary rights and/or copyright so as to enable the Contractor and/or Employer to effectively operate and maintain the Works or appoint another person/s to operate and maintain the Works or any part thereof; and
- j) *enable* the Employer to incorporate any other toll roads or national systems, in the Republic of South Africa, into the Works.
- k) *The Subcontractor shall ensure that, where necessary, the consent and/or license for the use of any design, computer program, software and other documents, which may be required for the effective operation and maintenance of the Works, are obtained in favour of the Contractor and the Employer."*

**SUB-CLAUSE 4.5: "NOMINATED SUBCONTRACTORS"**

At the end of sub-clause 4.5, insert the following:

*"The Employer advertised a tender for a Nominated Subcontract for the Design-Build, Operate and Maintenance of the Toll System part of the Works. Once the Employer has awarded this tender, the Employer will issue an instruction for the appointment of this nominated Subcontractor under this Contract.*

*The Contractor shall enter into such Nominated Subcontract agreement and shall be obliged to liaise, interface and manage the Nominated Subcontractor from the Commencement Date until its expiry or termination. The Conditions of the Nominated Subcontract is made available as part of the tender process for this Contract.*

*To aid the process, the Employer will make available, as soon as possible, in an Addendum to the Contractor's tender, the names of the prospective NSC tenderers that attended the compulsory Tender Briefing meeting.*

**PAYMENT OF NOMINATED SUBCONTRACTORS**

*The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Employer's Representative certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-clause 13.5 [Provisional Sums], except as stated in Evidence of Payments below.*

*The Contractor shall pay to the Nominated Subcontractor the amounts due within 7 days after the Contractor received the payment in question from the Employer.*

#### **EVIDENCE OF PAYMENTS**

*Before issuing a Payment Certificate which includes an amount payable to a Nominated Subcontractor, the Employer's Representative may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:*

*(a) submits this reasonable evidence to the Engineer, or*

*(b) (i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and*

*(ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,*

*then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.*

#### **SUB-CLAUSE 4.20: "EMPLOYER'S EQUIPMENT AND FREE-ISSUE MATERIALS"**

Delete the wording in this sub-clause 4.20 and insert the following:

*"The Employer shall make the Employer's Equipment available for the use of the Contractor in the execution and operation of the Works in accordance with the details and arrangements stated in the Employer's Requirements and Contractor's approved programme pursuant to sub-clause 8.3 [Programme] of the Conditions of Contract.*

*The Contractor shall be responsible for each item of Employer's Equipment whilst the Contractor is in possession and control of it.*

*The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Employer's Requirements."*

After sub-clause 4.25, insert a new Sub-Clause 4.26, which reads as follows:

#### **"SUB-CLAUSE 4.26 USE OF EMPLOYER'S FACILITIES**

*The Employer shall transfer to the Contractor the Employer's Facilities, as described in the Employer's Requirements, for purposes of the Contractor undertaking the Works and Operation Service.*

The Contractor shall, promptly after having received right or shared right of access to the Site where the Employer's Facilities are located, commence to inspect the facilities and shall within 90 days of the date of inspection of the Employer's Facilities, notify the Employer's Representative of any defects, shortages or defaults in these facilities. Unless otherwise agreed by the Parties, the Employer shall within a reasonable period rectify the notified shortages, defects or defaults.

After the inspection by the Contractor and immediately upon having received right of possession of the Employer's Facilities, the Contractor shall take custody and control of the facilities and be responsible for the operation, maintenance and care of the Employer's Facilities in accordance with the Employer's Requirements for the remainder of the Contract Period.

The risk of any loss or damage to the Employer's Facilities, save for 'Employer's Fixed Assets' as described in sub-clause 1.16 (Project Assets) and as otherwise stated in the Employer's Requirements, shall be borne by the Contractor."

**SUB-CLAUSE 6.1: "ENGAGEMENT OF STAFF AND LABOUR"**

At the end of this Sub-Clause add the following:

"The Contractor shall give effect to the Laws of the Country and specifically relating to Broad Based Black Economic Empowerment and Employment Equity."

**SUB-CLAUSE 6.2: "RATES OF WAGES AND CONDITIONS OF EMPLOYMENT"**

At the end of this sub-clause, insert the following paragraph:

"The Contractor shall use his best endeavours to employ the existing staff currently employed in the Operations of the Toll Plazas, provided that:

- a) The Contractor can reach an agreement with an employee on conditions that are in line with the prevailing employment laws and Labour Relations Act.;
- b) The Employee is qualified for the specific job he/she currently holds; and
- c) The Contractor can demonstrate to the employer that, he/she has conducted a process that is in accordance with the prevailing laws of the Republic of South Africa.

The Average Monthly Cost to the current Contractor per category listed in the following table (November 2022):

Staff Category Description	Shift Rate (AVE)	Basic Salary <sup>(1)</sup> (AVE)	Company Contributions <sup>(2)</sup> (AVE)	Total
1. Supervisor	640.30	11,980.01	4,087.23	16,067.24
2. Ass Supervisor (Senior Toll Collectors)	359.86	6,732.98	2,315.93	9,048.91
3. Toll Collectors				

Staff Category Description	Shift Rate (AVE)	Basic Salary <sup>(1)</sup> (AVE)	Company Contributions <sup>(2)</sup> (AVE)	Total
3.1 Toll Collectors (Permanent)	332.87	6,228.00	2,145.45	8,373.45
3.2 Toll Collectors (Aux)	-	-	-	-
4. Administrative Staff				
4.1 Administrator	-	13,197.81	2,854.78	16,052.59
4.2 Clerk	-	12,340.91	2,672.22	15,013.13
5. Cleaners				
5.1 Plaza Attendant	-	4,271.59	1,412.34	5,683.93
5.2 General Worker	-	4,271.59	1,412.34	5,683.93
6. Route Patrol				
6.1 Route Patrol Officers	394.54	7,381.80	2,534.95	9,916.75
7. Junior Technicians				
7.1 Junior E&M Technicians	-	6,304.86	1,386.24	7,691.10

Note:

1. Basic Salary includes a cash component only.
2. Company contribution includes COID, Bonus/13<sup>th</sup> Cheque, Life Assist, Leave Provision, Provident Fund, SDL Levy, UIF and Group Assistant Cover.
3. Rates of wages gets adjusted in March of each year.
4. Bargaining Unit rates are subject to wage negotiations with the represented union.
5. Basic Salary for shift workers is calculated at 18.71 shifts per month to accommodate night shift, Saturdays, Sundays and Public Holidays worked.
6. Shift workers work twelve (12) hour shifts.

The Contractor shall make provision for the possible future increases in the Schedule of Rates/Cost Matrix for the duration of the Contract.

**SUB-CLAUSE 6.4: "LABOUR LAWS"**

At the end of this sub-clause, insert the following:

*"At the end of the Operation Service Period or in the event of early termination of the Contract, the Employer may or re-let the Contract or any part thereof to another/other person/s and should such action constitute a transfer of business, the old and the newly appointed Contractor should adhere to the provisions of Section 197 of the Labour Relations Act 1995 (Act 66 of 1995) or any amendment or replacement thereof and shall*

take such steps as may be necessary to facilitate the transfer of business. In the event that the early termination or re-let of the Contract doesn't warrant a Section 197 transfer, the Contractor is obliged to comply to the applicable provisions of the Labour Relations Act including section 189 or any other employment laws”

**SUB-CLAUSE 6.9: “CONTRACTOR’S PERSONNEL”**

Add the following to this sub-clause:

“The Contractor and or the NSC is to make provision for any costs incurred due to the employment of the following personnel with the required qualifications and training.

PERSONNEL CATEGORY	REQUIRED QUALIFICATION AND TRAINING
1. Assistant Technician (Electronic)	HEQSF* level 5 (Referring to a minimum qualification of a higher certificate or advanced certificate) in electronics or similar Basic electricity safety awareness Six months practical experience
2. Technician (Electronic)	HEQSF* level 6 National Diploma in Information Technology, Computer Engineering, Digital Technology or Instrumentation and Process Control or similar accredited diploma Preferably registered with the Engineering Council of SA (ECSA) or similar accredited institution Minimum one year experience in similar technical field or proof of logbooks from practical period for Diploma Extensive knowledge in electricity safety Access to transport between Plazas with a valid driver’s licence
3. Senior Technician (Electronic)	HEQSF* level 6 National Diploma in Information Technology, Computer Engineering, Digital Technology or Instrumentation and Process Control or similar accredited diploma Preferably registered with the Engineering Council of SA (ECSA) or similar accredited institution Minimum of three years related technical experience Extensive knowledge in electricity safety Access to transport between Plazas a valid driver’s licence Minimum of 2 years’ experience in managing staff and resources
4. Call Centre Personnel	Be able to speak English and one other language Computer literacy Accredited and certified life skills program completion (as offered by Lifeline or similar) Call Centre Management Certificate Communications Training Certificate IMS Certificate Trained in call handling skills such as, but not limited to, telephone etiquette, customer relations, emergency call handling and dispatching
5. Construction Health and Safety Officer	NQF Level 6 National Diploma in Safety Management (NDS MN) equivalent training course as a minimum qualification.

PERSONNEL CATEGORY	REQUIRED QUALIFICATION AND TRAINING
	Preferably registered with the South African Council for the Project and Construction Management Professions (SACPMP). Minimum five (5) years of experience with regards to implementing and maintaining a health and safety management system compliant. Access to transport between Toll Plazas with a valid driver's licence.

Note: \*Reference to the Engineering Qualifications and the Higher Education Qualifications sub-framework (HEQSF) presentation by ECSA (<http://www.sasee.org.za/CMS/WP-content/uploads/2014/07/HEQSF-And-Engineering-Qualifications-B-van-Wyk.PDF>)

**SUB-CLAUSE 7.7: “OWNERSHIP OF PLANT AND MATERIALS”**

At the end of this clause, insert the following:

*“To the extent that the Contractor is unable, for any reason whatsoever, to transfer ownership in and to any item of Plant, the Contractor hereby grants the Employer a license, in perpetuity, to use such Plant. The license of use shall be in accordance with the terms and conditions as in respect of the Employer’s use of the Contractor’s Documents as set out in clause 1.11 [Employer’s use of Contractor’s Documents].”*

**SUB-CLAUSE 8.1: “COMMENCEMENT DATE”**

Delete Sub-clause 8.1 and replace with the following:

*“The Employer shall give notice stating the Commencement Date to the Contractor not less than 7 days prior to the Commencement Date. Unless otherwise stated in the Particular Conditions, Commencement Date shall be within 28 days after the issue of the Letter of Acceptance.”*

**SUB-CLAUSE 8.3: “PROGRAMME”**

Replace the first sentence of this sub-clause 8.3 with the following new wording:

*The Contractor shall submit detailed time programmes to the Employer’s Representative within:*

- a) *“5 days” after receiving the Notice under sub-clause 8.1 [Commencement Date] for the purpose of Section 1; and*
- b) *“21 days” after receiving the Notice under sub-clause 8.1 [Commencement Date] for the purpose of Sections 2, 3 and 4; and*
- c) *“14 days” after receiving a Notice that triggers the commencement date for any ad-hoc Section or any major activity to be performed by the Contractor during the Operation Service Period.*

*Each programme shall be compiled using the software as set out in the Contract Data.”*

After sub-paragraph (e) (iii), insert (iv) which reads as follows:

*(e) “and shall clearly identify the critical path”*

At the end of paragraph 1, insert the following sub-paragraph: -

*“(f) shall identify key milestone areas and target dates as contained in the Employer’s Requirements and Contractor’s Proposal.”*

**SUB-CLAUSE 8.6: “CONTRACT COMPLETION CERTIFICATE”**

The third line of the first paragraph to be modified to read as follows:

“... the Contract Completion Certificate has been signed by the Employer and issued to the Contractor...”

Amend the existing paragraph 2, by deleting the last sentence and replacing the same with the following:

*“The Employer may exercise the option referred to in sub-clause 10.8 [Completion of Operation Service] to extend the Operation Service Period.”*

Insert a paragraph at the end of this sub-clause 8.6 that reads:

*“The Contractor shall render his full co-operation and provide sufficient shared access to the operations, resources and project assets [as described in sub-clause 1.16 (Project Assets)] associated with the Works and do all things necessary to assure that the next contractor / person is in a position to comply with similar Design-Build and establishment obligations and requirements applicable to Section 1 of this Contract.”*

**SUB-CLAUSE 9.1: “COMMENCEMENT OF DESIGN-BUILD”**

In the first sentence, replace the words “28 days” with “5 days”.

**SUB-CLAUSE 10.2: “COMMENCEMENT OF OPERATION SERVICE PERIOD”**

Delete Paragraph 1 of this sub-clause and replace with the following:

*“The Operation Service Period shall commence on the date stated in the Section Commissioning Certificate issued in respect of Section 1.”*

**SUB-CLAUSE 10.3: “INDEPENDENT COMPLIANCE AUDIT”**

Delete this sub-clause 10.3 and replace with the following:

*“Either Party may or both Parties may jointly, at any point when circumstances warrant, elect to appoint an Auditing Body to carry out an independent and impartial audit during the performance of the Operation Service. The terms of the appointment of an Auditing Body shall be in accordance with the terms included in the Employer’s Requirements and the purpose will be to audit performance of either Party or both Parties in compliance with the Operation Management Requirements. In the case of a joint appointment where the Parties cannot agree on the appointment, the matter shall be referred to the / a DAB and the / a DAB shall make the appointment.*

*All reports issued by an Auditing Body shall be distributed to both Parties and both Parties shall cooperate with the Auditing Body and give due regard to the matters raised in each report issued by the Auditing Body.*

*In case of a joint appointment, each Party shall carry 50% of the cost of the Auditing Body.*

*In case of an appointment by either Party, the Party who made the appointment shall carry 100% of the cost of the Auditing Body.*

*All Auditing Body costs to be carried by the Employer shall be made by the Contractor to the Auditing Body against a Provisional Sum provided for this purpose in the Schedule of Payments. All Auditing Body costs to be carried by the Contractor shall be deemed to be included in his Rates and Prices.”*

**SUB-CLAUSE 10.6: “DELAYS AND INTERRUPTIONS DURING THE OPERATION SERVICE”**

Replace the second sentence of sub-paragraph (a) with the following wording:

*“The amount of the compensation due or performance adjustments to be made shall be calculated in accordance with the relevant Employer’s Requirements or as determined by the Employer’s Representative in accordance with sub-clause 3.5 [Determinations] and the Employer shall be entitled to make a corresponding adjustment to the next payment due to the Contractor.”*

At the end of the wording of sub-paragraph (a), insert a new sub-paragraph that reads as follows:

*“The amount of compensation that the Employer may recover as aforesaid shall be in addition to any payment adjustments which the Employer may be entitled to make by reason of the failure by the Contractor to reach the production outputs as contemplated in sub-clause 10.7 [Failure to Reach Production Outputs].”*

**SUB-CLAUSE 10.7: “FAILURE TO REACH PRODUCTION OUTPUTS”**

Delete paragraph 2 of sub-paragraph (b) and replace with the following:

*“In these circumstances the Employer shall be entitled to apply a payment reduction in accordance with the performance criteria and measurements set out in the Employer’s Requirements.”*

At the end of this sub-clause insert a new sub-paragraph that reads as follows:

*“(c) In the event that the Contractor exceeds the performance criteria set out in the Employer’s Requirements, the Contractor shall be entitled to payment of the performance incentives and/or bonuses (if any) as set out in the Employer’s Requirements.*

*Payment adjustment, negative or positive, shall be reflected in Payment Certificates as contemplated in sub-clause 14.7 [Issue of Advance and Interim Payment Certificates] and be deducted from or added to the payment to the Contractor*

*In this regard and for the avoidance of doubt, performance payment reductions shall first be made up to the maximum provided for in the Employer’s Requirements and thereafter the Employer shall be entitled to recover the actual loss suffered or incurred subject to sub-clause 3.5 [Determinations].”*

**SUB-CLAUSE 10.8: “COMPLETION OF OPERATION SERVICE”**

At the end of this sub-clause add the following:

*“The Employer shall have the option to extend the Operation Service Period for a further period of 3, 6, 12 or 24 months.*

*The Employer’s Representative shall notify the Contractor, in writing, not later than 180 days prior to the end of the Operation Service Period, of the Employer’s intention to exercise such option to extend the Operation Service Period. The price payable to the Contractor in respect of the extended Operations Service Period shall be calculated in accordance with the Rates and Prices quoted by the Contractor for the appropriate Operation Service and shall be adjusted in accordance with sub-clause 13.8 [Adjustments for Changes in Costs] hereunder.”*

After sub-clause 10.9 add the following clause:



**“SUB-CLAUSE 10.10: ADVERTISING AND MARKETING AND ASSOCIATED INCOME**

*The Contractor shall be entitled to all income generated through direct mandating at the relevant sites such as handing out pamphlets, provided the direct marketing relates to a road safety initiative and subject to the prior approval of the Employer.*

*The Contractor shall report such income to the Employer on a monthly basis. Any other income generated through advertising on the site shall be for the benefit of and accrue to the Employer.”*

**SUB-CLAUSE 11.8: “JOINT INSPECTION PRIOR TO CONTRACT COMPLETION”**

In the first sentence in the first line replace the words “two years” with “180 days”.

**SUB-CLAUSE 12.1: “COMPLETION OF OUTSTANDING WORK AND REMEDYING DEFECTS”**

Replace the wording of sub-paragraph (b) and the last paragraph of this sub-clause 12.1 with the following:

*“(b) Operation Service Period: Unless otherwise stated in the Employer’s Requirements, the Contractor shall be responsible for repairing and making good any damage or defect occurring during the Operation Service Period, whether such defect or damage is notified by the Employer or his Representative or observed by the Contractor himself.*

*In the case of all outstanding work, defects and damage, including all such items reported by the next Contractor and identified under sub-clause 11.8 [Joint Inspection Prior to Contract Completion] not completed or resolved by the Contractor at the time of the issue of the Contract Completion Certificate, the Contractor shall remain liable until completion thereof and the Employer shall be entitled to claim under sub-clause 4.2 [Performance Security].”*

**SUB-CLAUSE 12.2: “COST OF REMEDYING DEFECTS”**

Below sub-paragraph (b), insert a new sub-paragraph (c) with the following wording:

*“(c) or where such risk and cost is specifically excluded by virtue of the Employer’s Requirements.”*

In the last paragraph, insert after the words ‘or (b)’, the words “or (c)”.

**SUB-CLAUSE 13.1 “RIGHT TO VARY”**

In the first sentence delete words “at any time prior to issuing of the Commissioning Certificate” and replace with the following “during the Contract Period.”

In the third paragraph, replace the term “proceed with variation” with the word “proceed with variation (save for provisional variation arising from Provision Sums in the Schedule of Payments/Cost Matrix)”

**SUB-CLAUSE 13.3 “VARIATION PROCEDURE”**

The first sentence of the 2nd paragraph to be modified to read as follows:

*“The Employer’s Representative shall, as soon as practicable after receiving such proposal (under sub-clause 13.2 [value Engineering] or otherwise) make a recommendation to the Employer to approve, disapprove or comment. Upon receipt of the Employer decision, the Employer Representative will notify the Contractor of the approval, disapproval or comments. The Contractor ....”*

**SUB-CLAUSE 13.5: “PROVISIONAL SUM”**

The first sentence of the 1<sup>st</sup> paragraph to be modified to read as follows:

“The Employer will approve the usage of a Provisional Sum, in whole or in part and the contract price ....”

Delete the last sentence of sub-clause 13.5(b) (ii) and replace with the following:

*“... Appropriate schedule. The maximum percentage allowed for each item is stated in the Contract Data. If there is no such rate, the percentage shall be zero (0) and shall be applied to all scheduled and provisional sums added during the contract period.”*

After sub-clause 13.8 insert the following new Sub-Clause 13.9 to read as follows:

**“SUB-CLAUSE 13.9: “ADJUSTMENTS FOR PERFORMANCE OUTPUTS”**

*“The amount payable to the Contractor shall be adjusted as contemplated by sub-clause 10.7 [Failure to Reach Production Outputs].”*

**SUB-CLAUSE 14.5: “ASSET REPLACEMENT SCHEDULE”**

Replace the wording under this sub-clause 14.5 with the following:

*“Unless otherwise specified in the Employer’s Requirements, the Contractor shall be responsible for all project assets [as described in sub-clause 1.16 (Project Assets)] replacements and all associated costs in relation thereto, save for the Employer’s Fixed Assets of which replacements (if any) shall be effected by the Employer or as provided for in the Employer’s Requirements.”*

**SUB-CLAUSE 14.7: “ISSUE OF ADVANCE AND INTERIM PAYMENT CERTIFICATES”**

In the first paragraph of this sub-clause 14.7, replace the words ‘28 days’ with the words “21 days”.

**SUB-CLAUSE 14.8: “PAYMENT”**

In sub-paragraph (b) of this sub-clause 14.8, replace the words ‘56 days’ with the words “32 days”.

**SUB-CLAUSE 14.10: “PAYMENT OF RETENTION MONEY”**

Delete the wording and insert the following:

“Void”

**SUB-CLAUSE 14.18: “ASSET REPLACEMENT FUND”**

Delete the wording and insert the following:

“Void”

**SUB-CLAUSE 14.19: “MAINTENANCE RETENTION FUND”**

Delete the wording and insert the following:

“Void”

**SUB-CLAUSE 15.2: “TERMINATION FOR CONTRACTOR’S DEFAULT”**

In paragraph 1 at the end of sub-paragraph (c), insert the following:

“or;

*(iii) fails to proceed with and bring to completion the Design-Build parts of the Works, within the periods stated in the Contract Data.”*

In paragraph 1 at end of sub paragraph (h), insert the following:

*“(j) In the case of the Contractor default referred to under Clause 15.1, The Employer may terminate this Contract by notice in writing having immediate effect (with a copy to the Employer Representative). Then the provision in Clause 15.3 and Clause 15.4 shall apply.*

*The Employer will also have the right to terminate any other Contract between the Employer and Contractor and not allow to tender on any future project put out to tender by the Employer for a period of five (5) years from the date of Notice, which period may be reduced by application to and at the sole discretion of the Employer.”*

**SUB-CLAUSE 17.4: “THE CONTRACTOR’S RISKS DURING THE OPERATION SERVICE PERIOD”**

At the end of this sub-clause 17.4, insert new sub-paragraphs as set out hereunder:

*“(c) and all risk relating to loss of revenue, resulting or arising from the design, operation and maintenance of the Works by the Contractor; and  
(d) all risk in respect of loss or damage to the project assets (as described in sub-clause 1.16 (Project Assets), save for the Employer’s Fixed Assets (fixed type of assets).”*

**SUB-CLAUSE 20.3: “APPOINTMENT OF DISPUTE ADJUDICATION BOARD”**

In paragraph 1, delete the last sentence and replace with the following:

*“On an ad-hoc basis and whenever either Party gives Notice to the other Party, the Parties shall promptly proceed to appoint a DAB.”*

Delete paragraph 4 of this sub-clause 20.3.

**SUB-CLAUSE 20.6: “OBTAINING DISPUTE ADJUDICATION BOARD’S DECISION”**

In the first sentence of paragraph 4 of this sub-clause: change “84 days” to “56 days” and “105 days” to “84 days”.

**SUB-CLAUSE 20.8: “ARBITRATION”**

In the 4<sup>th</sup> line of the 1<sup>st</sup> paragraph, delete the word ‘international’.

In sub-paragraph (a), replace the words ‘International Chamber of Commerce’ with “*South African Association of Arbitration*”.

**SUB-CLAUSE 20.10: “DISPUTES ARISING DURING OPERATION SERVICE PERIOD”**

Delete the existing clause 20.10 and replace with the following:

*“Disputes arising during the Operation Service Period which cannot be resolved between the Parties shall be settled by a one-person ad-hoc DAB (“Operation Service DAB”). Such person shall be jointly agreed and*

*appointed by the Parties by the date 28 days after one Party has given Notice to the other Party of its intention to refer a Dispute to a DAB in accordance with sub-clause 20.10 [Disputes Arising during the Operation Service Period].*

*If the Parties cannot agree on the person who shall be the Operation Service DAB, then the person shall be appointed according to the provisions of sub-clause 20.4 [Failure to Agree Dispute Adjudication Board].*

*The agreement between the Parties and the Operation Service DAB shall incorporate by reference the General Conditions of Dispute Adjudication Agreement contained in the General Conditions of Contract, with such amendments as are agreed between them.*

*The terms of remuneration of the Operation Service DAB shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration. All Employer's costs associated with all DAB matters shall be effected by the Contractor in accordance with a Provisional Sum, if provided in the Schedule of Payments. All Contractor's costs associated with all DAB matters are deemed to be included in his Rates and Prices.*

*The procedure of obtaining a decision from the Operation Service DAB shall be in accordance with the provisions of sub-clause 20.6 [Obtaining Dispute Adjudication Board's Decision], and the DAB shall give its decision no later than 56 days after receiving the response or, if no response is submitted, 84 days after receiving the reference and the supporting documentation from the Parties.*

*The appointment of the Operation Service DAB shall expire 28 days after it has given its decision in writing to both Parties.*

*If either Party is dissatisfied with the decision of the Operation Service DAB, the provisions of sub-clause 20.6 [Obtaining Dispute Adjudication Board's Decision], 20.7 [Amicable Settlement], 20.8 [Arbitration] and 20.9 [Failure to Comply with Dispute Adjudication Board's Decision] shall apply."*

**C1.4 OTHER STANDARD FORMS**

**C1.4.1 OPERATING LICENCE**

The South African National Roads Agency SOC Limited, Registration Number: 1998/009584/30, (the "Employer") a Public Company incorporated in accordance with the South African National Roads Agency Limited and National Roads Act, 1998 ("the Act"), hereby grants to:

.....  
[INSERT CONTRACTOR'S NAME]  
(hereinafter referred to as "the Contractor")

The Operating Licence on the terms and conditions of the Contract, Sub-clause 1.7 [Operating License] and as contemplated in the Act.

The Contractor shall during the period stated in the Contract, on behalf of the Employer (and without derogating, in any way whatsoever, from the Contractor's obligations in terms of the Contract):

- a) operate and maintain the Works; and
- b) be responsible for care of the Works and ensure that the Works and Goods are in proper working order; and
- c) collect, on behalf of the Employer, the toll on the road(s) as identified in the Contract; and
- d) levy toll that is determined by the Minister of Transport and published in the Government Gazette from time to time; and
- e) process the payment of tolls, recover tolls from any person(s) liable to pay same and procure compliance with the terms of the Act by all road users; and
- f) in general comply with all its obligations in terms of the Contract and the Act.

For the avoidance of doubt, where there is any conflict between the terms of this Operating License and the obligations imposed on the Contractor pursuant to the Contract, the provisions of the Contract shall prevail.

THUS DONE and SIGNED at ..... on this the ..... day of ..... 2020.

.....  
For and on behalf of:  
**THE EMPLOYER**

**C1.4.2 FORM OF PERFORMANCE SECURITY – SURETY BOND**

**Note to Tenderer:**

**This Pro forma is for information only. The successful tenderer’s Bank will need to reproduce it without amendment, omission or addition for completion and lodgement with the Employer. A separate copy of this Pro forma will be issued to the successful tenderer with the Letter of Acceptance.**

To be provided to the South African National Roads Agency SOC Limited established in terms of section 2 of South African National Roads Agency Limited and National Roads Act 1998 (Act No. 7 of 1998) of the Republic of South Africa having its principal place of business in [Pretoria](hereinafter called the "THE EMPLOYER")

Whereas:

- (a) The Employer has awarded CONTRACT SANRAL N.017-024-2019/1 FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD (the Contract) to ..... (the Contractor),
- (b) the Contractor is required in terms of the Contract to obtain or procure this Bond to be provided to The Employer.

We, the undersigned

..... and .....  
(Name) (Name)  
acting herein as

..... and .....  
(Position) (Position)  
of

.....  
(hereinafter called the "Bank")

being duly authorised to sign and incur obligations in the name of the Bank under and in terms of a Resolution of the Board of Directors of the Bank, a certified copy of which is annexed hereto, hereby irrevocably and unconditionally guarantee and undertake on behalf of the Bank that:

1. The Bank shall pay amounts not exceeding R ..... (..... Rand) (the "Maximum Amount") without delay, on receipt by the Bank of the first written demand of the Employer that the amount is due and payable and without proof of any breach or other default. The Bank shall pay such amount(s) to the Employer (as specified in clause 5 below) upon receipt of a certificate herein after called the "Certificate" which shall be signed by any of the following authorised Employer representative, the Chief Executive Officer, the Chief Financial Officer, the Engineering Executive or the relevant Regional Manager certifying that the Employer is entitled to draw on this Bond pursuant to the provisions of the Contract. The Employer may make partial and/or multiple demands under this Bond provided that the aggregate amounts paid under this Bond shall not exceed the Maximum Amount.
2. The demand for payment together with this Bond (or a certified copy hereof) and the Certificate shall constitute prima facie proof of the Bank’s indebtedness hereunder for the purposes of any proceedings including but not limited to provisional sentence proceedings instituted against the Bank in any court of law having jurisdiction.

**C1.4.2 FORM OF PERFORMANCE SECURITY – SURETY BOND (CONTINUED)**

- 3. The failure of the Employer to enforce strict or substantial compliance by the Contractor with its obligations or any act, conduct, or omission by the Employer prejudicial to the interests of the Bank including, without limitation, the granting of time or any other indulgence to the Contractor or any other person or by amendment to or variation or waiver of terms of the Contract or any ancillary or related document (the "Underlying Documents") will not discharge the Bank from liability under this Bond. For the avoidance of doubt, the Bank's liability under this Bond will not be discharged notwithstanding the winding up, dissolution or judicial management of the Contractor or any other person and the Bond shall be honoured regardless of the invalidity, illegality or unenforceability of the Underlying Documents.
  
- 4. This Bond shall:
  - 4.1 remain in full force and effect from the date hereof, and shall expire on the earlier of:
    - 4.1.1 Four (4) months after the issue of the Contract Completion Certificate;
    - 4.1.2 Ninety (90) days after the date of termination of the Contract;
  - 4.2 exist independently of the Contract or any amendment, variation or notation thereof;
  - 4.3 not be ceded, assigned or otherwise transferred by the Employer, or otherwise dealt with in any manner whatsoever (save for the purposes and in the manner referred to above) which has or may have the effect of transferring or encumbering or alienating the Employer rights hereunder;
  - 4.4 be returned to the Bank on its expiry, cancellation, withdrawal or this Bond being fully drawn; and
  - 4.5 be governed by the laws of the Republic of South Africa.
  
- 5. The Bank shall deposit any payment made under this Bond into the account named SANRAL held at *(Note to compiler: insert SANRAL banking details)* E.g. XXXX Bank Limited, Hatfield, Pretoria, Branch code, under account number: 01.....3.
  
- 6. The Bank shall make any payment demanded under this Bond free, clear of and without any deduction, withholding, counterclaim or set-off of any kind. If the Bank is required by law to make payments subject to the deduction or withholding of tax, it will make such further payments as are necessary to ensure that the amounts paid to the Employer equal the amounts that would have been paid to the Employer had no such deduction or withholding been made or been required to be made.
  
- 7. The obligations of the Bank under this Bond shall not in any way be affected by the invalidity, illegality or unenforceability for any reason of the obligations of the Contractor.
  
- 8. Addresses and Notices:
  - 8.1 The parties hereto choose *domicilium citandi et executandi* for all purposes of and in connection with this Contract as follows:  
  
EMPLOYER: The South African National Roads Agency SOC Limited  
  
Telefax: 012 844 8200  
  
The Bank: .....  
  
Telefax: .....

**C1.4.2 FORM OF PERFORMANCE SECURITY – SURETY BOND (CONTINUED)**

- 8.2 Any party hereto shall be entitled to change its *domicilium* from time to time, provided that any new *domicilium* selected by it shall be a physical address in the Republic of South Africa, and any such change shall only be effective upon receipt of notice in writing by the other party of such change.
- 8.3 All notices, demands, communications or payments intended for any party shall be made or given at such party's *domicilium* for the time being.
- 8.4 Any notice required or permitted to be given under this Bond shall be valid and effective only if in writing.
- 8.5 A notice sent by one party to another party shall be deemed to be received
  - 8.5.1 on the same day, if delivered by hand;
  - 8.5.2 on the same day of transmission, if sent by telefax with a receipt confirming completion of transmission.
- 8.6 Notwithstanding anything to the contrary herein contained a written notice or communication actually received by a party shall be an adequate written notice or communication to it notwithstanding that it was not sent to or delivered at its chosen *domicilium citandi et executandi*.

SIGNED ON THIS..... DAY OF ..... 20 .....

AT ..... (Place)

SIGNATURE ..... SIGNATURE .....

[NAME] ..... [NAME] .....

[TITLE] ..... [TITLE] .....

WITNESS 1 ..... WITNESS 2 .....



**C1.4.3 FORM OF CERTIFICATE**

To: [Name and address of Bank]

Attention: ●

From: [South African National Roads Agency SOC Limited] hereinafter referred to as "the Employer"

Address:

Dated: ●

Dear Sirs

**Performance Security - Surety Bond Dated [insert date] (the "Bond")**

We refer to the above Bond issued by you. Terms defined in the Bond shall have the same meaning when used in this Bond.

The Employer is entitled to call on this Bond under Clause [insert relevant clause number of the Agreement] and we demand payment of the sum of R[●] under the Bond. Payment is to be made in accordance with the provisions of the Bond.

Payment must be made without delay to [Employer's bank account details].

Yours faithfully,

.....  
for and on behalf of  
[South African National Roads Agency SOC Limited]

**C1.4.4 FORM OF AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993) AND CONSTRUCTION REGULATIONS, 2014**

This AGREEMENT made at.....

on this the..... day of.....in the year.....between

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED (hereinafter called "the Employer") on the one part,

herein represented by .....

in his capacity as.....and delegate of the Employer in terms of the Employer's standard powers of delegation pursuant to the provisions of Act No 7 of 1998 and

..... (hereinafter called "the Mandatory") on the other part,

herein represented by.....

in his capacity as .....

WHEREAS the Employer is desirous that certain Works be constructed, namely

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

and has accepted a tender by the Mandatory for the construction, completion and maintenance of such works and has appointed the Mandatory in terms of Regulation 5(1)(k) of the Construction Regulations 2014, and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.
2. This Agreement shall hold good from its Commencement Date, to either:
  - (a) the date of the Contract of Completion Certificate issued in terms of sub-clause 8.6 of the FIDIC Conditions of Contract for Construction for Design, Build and Operate Projects (2008) published by Federation Internationale des Ingenieurs-Conseils (FIDIC) (hereinafter referred to as "the GCC"), as contained in Volume 1 Book 1 of the Contract Documents pertaining to this Contract, or
  - (b) the date of termination of the Contract in terms of Clauses 15, 16 or 18 of the GCC.
3. The Mandatory declares himself to be conversant with the following:-
  - (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act.
    - (i) Section 8: General duties of employers to their employees.
    - (ii) Section 9: General duties of employers and self-employed persons to persons other than employees.
    - (iii) Section 37: Acts or omissions by employees or mandataries and
    - (iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement.
  - (b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

- 4 In addition to the requirements of sub-clauses 4.8, 6.7 and 17.9 of the GCC and all relevant requirements of Volume 3 of the Contract Documents pertaining to this Contract, the Mandatary agrees to execute all the works forming part of this Contract and to operate and utilize all machinery, plant and equipment in accordance with The Act.
5. The Mandatary is responsible for the compliance with the Act by all his sub-contractors, whether or not nominated and/or approved by the Employer.
6. The Mandatary warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No 130 of 1993) which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the Agreement.
7. The Mandatary undertakes to ensure that he and/or his sub-contractors and/or their respective employees will at all times comply with the following conditions:
  - (a) The Mandatary shall assume the responsibility in terms of Section 16.1 of The Act. The Mandatary shall not delegate any duty in terms of Section 16.2 of The Act without the prior written approval of the Employer. If the Mandatary obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
  - (b) All incidents referred to in The Act shall be reported by the Mandatary to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
  - (c) The Employer hereby obtains an interest in the issue of any formal enquiry conducted in terms of section 32 of The Act into any incident involving the Mandatary and/or his employees and/or its sub-contractors.

In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

**SIGNED FOR AND ON BEHALF OF THE EMPLOYER:** .....

**AS WITNESSES:**

1 .....  
SIGNATURE NAME (IN CAPITALS)

2 .....  
SIGNATURE NAME (IN CAPITALS)

**SIGNED FOR AND ON BEHALF OF THE MANDATARY:** .....

**AS WITNESSES:**

1 .....

SIGNATURE

.....

NAME (IN CAPITALS)

2 .....

SIGNATURE

.....

NAME (IN CAPITALS)

**C1.4.5 (A) FORM OF APPLICATION FOR A PERMIT TO DO CONSTRUCTION WORK TO DEPARTMENT OF LABOUR**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**ANNEXURE 1**

**Occupational Health and Safety Act, 1993**

**(Regulation 3(2) of the Construction Regulations, 2014)**

**APPLICATION FOR A PERMIT TO DO CONSTRUCTION WORK**

This application must be submitted with the following documents:

Health and Safety specification.

Baseline risk assessment.

Name, postal address and telephone numbers of the client:

.....  
.....

Details of the Agent:

(a) Title, Surname and Initials:.....

(b) Identity number / Passport number:.....

(c) Registration number with SACPCMP: .....

(d) Office Tel. Number and/or Mobile number:.....

(e) Postal address:.....

Name, postal address and telephone numbers of the appointed principal contractor:

.....  
.....

Name, postal address and telephone numbers of the designer of the project:

.....  
.....

Name, postal address and telephone numbers of the following persons:

(a) Construction Manager:  
.....

(b) Construction Health and Safety Manager:  
.....

(c) Construction Health and Safety Officer:  
.....

Exact physical address of the construction and site office:

.....  
.....

Nature of construction work:

.....  
.....

Expected commencement date:

Expected completion date:

Estimated maximum number of persons on the construction site:

.....

Planned number of contractors on the construction site accountable to the principal contractor:

.....

Name(s) of contractors appointed:

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

\_\_\_\_\_  
Signature of Client / Client's Agent

\_\_\_\_\_  
Signature of the Principal Contractor

**FOR OFFICE ONLY**

Authorization / Unique No.	LABOUR CENTRE	OFFICIAL APPROVAL STAMP
-------------------------------	---------------	-------------------------

Date of application: .....

Submitted documents prescribed in Construction Regulation 5(1) (Please tick ✓):

CR 5(1)(a)	CR 5(1)(b)	CR 5(1); (C-S)	
------------	------------	----------------	--

Result of the application (Please tick ✓)

Approved		Declined	
----------	--	----------	--

Reason for declining the application

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Signature of the Supervisor

\_\_\_\_\_  
Signature of revoking officer / Inspector

**C1.4.5 (B) FORM OF NOTIFICATION OF CONSTRUCTION WORK TO DEPARTMENT OF LABOUR  
CONTRACT SANRAL N.017-024-2019/1  
FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Annexure 2**

**Occupational Health and Safety Act, 1993 (Act No 85 of 1993)**

**Regulation 4 of the Construction Regulations, 2014**

**NOTIFICATION OF CONSTRUCTION WORK**

- 
1. a) Name and postal address of principal contractor:  
.....  
.....
  - b) Name and telephone number of principal contractor's contact person:  
.....  
.....
  2. Principal contractor's compensation registration number:  
.....
  3. a) Name and postal address of client:  
South African National Road Agency SOC Limited  
Eastern Region  
58 Van Eck Place  
Mkondeni  
Pietermaritzburg  
3207
  - b) Name and telephone number of client's contact person or agent:  
Client: .....  
Agent: .....
  4. a) Name and postal address of designer(s) of the Project:  
.....
  - b) Name and telephone number of the designer's contact person:  
.....
  5. Name and telephone number of principal contractor's construction manager on site appointed in terms of Regulation 8(1):  
.....
  6. Name(s) of principal contractor's Assistant Construction Manager on site appointed in terms of Regulation 8(2):  
.....



7. Exact physical address of the construction site or site office:

.....  
.....

8. Nature of construction work:

.....  
.....  
.....

9. Expected commencement date:

.....

10. Expected completion date:

.....

11. Estimated maximum number of persons on the construction site:

Total: ..... Male: ..... Female: .....

12. Planned number of contractors on the construction site accountable to the principal contractor:

.....  
.....  
.....

13. Name(s) of contractors already selected:

.....

.....  
PRINCIPAL CONTRACTOR

.....  
DATE

.....  
CLIENT AGENT (Where Applicable)

.....  
DATE

.....  
CLIENT

.....  
DATE

- THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR PRIOR TO COMMENCEMENT OF WORK ON SITE.
- ALL PRINCIPAL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK

**C1.4.6 FORM OF AGREEMENT FOR DAB MEMBERS**

*[All italicised text and any enclosing square brackets are for use in preparing the final form and shall be deleted from the final product.]*

Name of Contract: .....

This Agreement made the ..... day of .....20 .....

between

Name and address of Employer: .....

Name and address of Contractor: .....

Name and address of DAB Member: .....

Whereas the Employer and the Contractor have entered into a Contract and desire jointly to appoint the above-named Member to act on the DAB as the chairman of the *[insert 1 or 3 whichever applies]* Member DAB during the *[insert Contract Period or any other period as may be applicable]*,

And whereas the Member accepts the appointment.

The Employer, Contractor and Member jointly agree as follows:

1. The conditions of this Dispute Adjudication Agreement comprise the "General Conditions of Dispute Adjudication Agreement" which are appended hereto, and the following provisions. In these provisions, which include amendments and additions to the "General Conditions of Dispute Adjudication Agreement", words and expressions shall have the same meanings as are assigned to them in the "General Conditions of Dispute Adjudication Agreement".
2. *[Details of any amendments or additions or deletions from the "General Conditions of Dispute Adjudication Agreement" should be given here or in an attachment hereto.]*
3. In accordance with Clause 6 of the "General Conditions of Dispute Adjudication Agreement", the Member shall be paid as follows:
  - (a) A retainer fee of ..... per calendar month, and
  - (b) A daily fee of ..... per day spent on Site visits, hearings, and other time in connection with submissions to the DAB made in accordance with the provisions of the Contract between the Employer and the Contractor.
4. In consideration of these fees and other payments to be made by the Employer and the Contractor in accordance with Clause 6 of the "General Conditions of Dispute Adjudication Agreement", the Member undertakes to act as the DAB Member in the capacity above-mentioned in accordance with the terms of this Dispute Adjudication Agreement.
5. The Employer and the Contractor jointly and severally undertake to pay the Member in consideration for his acting as the DAB Member as aforementioned in accordance with this Dispute Adjudication Agreement.
6. This Dispute Adjudication Agreement shall be governed by the laws of the Republic of South Africa.

Signed by: ..... Signed by: ..... Signed by: .....  
(signature) (signature) (signature)

for and on behalf of Employer for and on behalf of Contractor for and on behalf of Member

in the presence of in the presence of in the presence of

Witness: ..... Witness: ..... Witness: .....  
(signature) (signature) (signature)

Name: ..... Name: ..... Name: .....  
Address: ..... Address: ..... Address: .....

Date: ..... Date: ..... Date: .....

**C1.4.7 FORM OF BANKING DETAILS**

**Notes to Contractor:**

- 1. The Employer applies an Electronic Funds Transfer system for all payments.
- 2. If you are already registered as a vendor with the Employer, you are required to confirm your banking details in the form below but not required to submit documentation as per note 3.1 and 3.2.
- 3. If you are not registered as a vendor with the Employer, you are required to supply:
  - 3.1 a completed SANRAL Vendor Application Form (to be obtained from the relevant Regional Project Manager); or
  - 3.2 an original cancelled cheque bearing your company name and account number; or
  - 3.3 if you are unable to supply an original cancelled cheque, you are to provide a letter on your letterhead as per the pro forma below and return the original letter to the address as stated in clause 1.3 of C1.2.2 - Information provided by the Employer, delivered by hand or sent by post.

To:  
 The Regional Manager (Northern Region)  
 The South African National Roads Agency SOC Ltd  
 38 Ida Street  
 Menlo Park  
 Pretoria,  
 0081

Dear Sir

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**BANKING DETAILS**

By signing this document, we accept the following:

The banking details submitted are those of (Contractor Name) and we take full responsibility for their correctness.

We indemnify the Employer from any and all outcomes if an electronic transfer is made into an incorrect bank account using the banking details submitted.

Account Name: .....

Bank: .....

Branch Name: .....

Branch Code: .....

Account Number: .....

Yours sincerely

.....  
*Authorised Signatory for Contractor*

.....  
*Date:*

**C1.4.8 TAX COMPLIANCE PERMISSION DECLARATION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Note:**

**In terms of National Treasury Instruction No 3 of 2014/2015 with reference to the Public Finance Management Act, 1999 (Act No 1 of 1999) and Regulations, the contractor and subcontractors are required to provide the Employer with written confirmation to access the SARS Electronic Tax Compliance Status (TCS) System to verify and continuously track the tax compliance status of all persons conducting business with the State.**

The Contractor shall complete the declaration below.

I, ..... (name)  
the undersigned in my capacity as ..... (position)  
on behalf of .....  
..... (name of company)

herewith grant consent that SARS may disclose to the South African National Roads Agency SOC Limited (SANRAL) our tax compliance status on an ongoing basis for the contract term.

For this purpose, our unique security personal identification number (PIN) is .....,  
our tax reference number is ..... and our tax clearance certificate number is .....

In addition, the Contractor shall obtain written consent from each of its subcontractors, undisclosed principals and partners involved in this contract confirming that SARS may, on an ongoing basis during the contract term, disclose the subcontractors' tax compliance status to the Employer. For this purpose, the Contractor shall provide the Employer with the unique security personal identification number (PIN), tax reference number and tax clearance certificate for each of its subcontractors, undisclosed principals and partners involved in this contract.

SIGNATURE: .....

DATE: .....

**C1.4.9 APPOINTMENT OF PRINCIPAL CONTRACTOR IN TERMS OF REGULATION 5.1(K) OF THE CONSTRUCTION REGULATIONS, 2014 INCORPORATED IN THE OCCUPATIONAL HEALTH AND SAFETY ACT, ACT 85 OF 1993**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**APPOINTMENT OF PRINCIPAL CONTRACTOR BY CLIENT (EMPLOYER)**

This AGREEMENT made at .....

on this the ..... day of ..... in the year .....

between THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED (hereinafter called "the Client") on the one part, herein represented by ..... *compiler to insert*

in his/her capacity as ..... *compiler to insert*

and delegate of the Client in terms of the Client's standard powers of delegation pursuant to the provisions of Act No. 7 of 1998, and .....

(hereinafter called "the Principal Contractor") on the other part, herein represented by .....

.....

in his capacity as .....

WHEREAS the Client is desirous that certain works be constructed, viz.

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

and has accepted a tender by the Principal Contractor for the construction, completion & maintenance of the works.

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

8. The Principal Contractor shall execute the work in accordance with the contract documents pertaining to this contract.
9. This Agreement shall hold good from its commencement date, to either:
  - the date of the Performance Certificate issued in terms of sub-clause 11.7 of the Conditions of Contract for Design, Build and Operate Projects i (2008) published by Federation Internationale des Ingenieurs-Conseils (FIDIC), as contained in Volume 1 of the contract documents pertaining to this contract, or
  - the date of termination of the contract in terms of clauses 15, 16 or 19 of the GCC.
10. The Principal Contractor declares himself to be conversant with all the requirements and standards of the Occupational Health and Safety Act (Act 85 of 1993) together with its amendments and incorporated Regulations, hereinafter referred to as "The Act", and with special reference to the Construction Regulation 7: Duties of Principal Contractor and Contractor.
11. The Principal Contractor is responsible for the compliance with the Act by all his subcontractors and suppliers when entering the construction site, whether or not nominated and/or approved by the Client.

12. The Principal Contractor warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act 1993, which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.
13. The Principal Contractor warrant that adequate provision has been made for the cost of health and safety measures during the execution of the project, and that sufficient resources (including competent personnel) are available to carry out the construction work safely.
14. The Principal Contractor warrants that the Employer / Client has carried out his duties in terms of Construction Regulation 5.1(a)(b)(f):

Construction Regulation 5.1(a): A baseline risk assessment for the intended construction work was prepared by the client and included in the tender documentation.

Construction Regulation 5.1(b) & (f): A suitable, sufficiently documented and coherent site-specific health and safety specification for the intended construction work based on the baseline risk assessment was included in the tender documentation.

In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

**SIGNED FOR AND ON BEHALF OF EMPLOYER**

**WITNESS 1:**

SIGNATURE: .....

NAME (IN CAPITALS) .....

**WITNESS 2:**

SIGNATURE: .....

NAME (IN CAPITALS) .....

**SIGNED FOR AND ON BEHALF OF THE PRINCIPAL CONTRACTOR**

**WITNESS 1:**

SIGNATURE: .....

NAME (IN CAPITALS) .....

**WITNESS 2:**

SIGNATURE: .....

NAME (IN CAPITALS) .....

**FORM C1.5 CONTRACT DATA – INFORMATION PROVIDED BY THE TENDERER**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**A: CONTACT DETAIL**

The Service Provider is .....

Address: .....

Telephone: .....

Facsimile: .....

The authorised and designated representative of the Service Provider is:

Name: .....

The **postal address** for receipt of communications is: .....

.....

Telephone: .....

Facsimile: .....

Address:.....

E-mail Address: .....

**B: KEY PERSON**

Key Person	Name
Contract Engineer	
Alternate to Contract Engineer (if applicable)	

**C: INFORMATION REQUIRED FOR THE PUBLICATION OF AWARD AS PER NATIONAL TREASURY INSTRUCTION NOTE**

Name of Director(s)		Appointment Date	Designation



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**PART C2:      PRICING DATA**

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**PART C2: PRICING DATA**

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## C2.1 PRICING ASSUMPTIONS

1. The measurement and payment shall be in accordance with relevant provision of the Standard Specification for Operations and Maintenance for CTROM Projects: Payment Methodology and Description of Payment items (Volume 2 Book 7a) (October 2010).
2. The assumptions listed in this section must be read in conjunction with the Preamble to Schedule of Payments in the Standard Specifications for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (Volume 2 Book 7a) (October 2010).
3. The tenderer is to note that Schedule of Payments are in the Cost Matrix format to allow the tenderer to price different monthly rates to cater for the various traffic peaks that may occur during the Contract Period.
4. The tenderer shall submit prices for the Contract Period for the Fixed and Variable Cost Payment Mechanism for the Gosforth, Dalpark, Leandra, Trichardtsfontein, and Ermelo Control Centres.
5. Items indicated with the term “if triggered” will only be paid on implementation when instructed by the Employer. Payment for these items will be delayed coinciding with the actual implementation. The prices must include for all developing, procurement, installation and removal of redundant material from site (if applicable).
6. An electronic version of the Schedule of Payments/Cost Matrices is included in Volume 4. The tenderer shall provide all entries required in the Schedule of Payments/Cost Matrix for each Control Centre.
7. SUBTOTAL (COST CARRIED FORWARD TO SCHEDULE OF PAYMENTS/COST MATRIX). All entries shall be to Rand (R0,00) and shall exclude VAT. The cells in the electronic version of the Schedule of Payments/Cost Matrix that require input by the tenderer are shaded in light blue “**either in the rate or in the month column(s)**”. All the blue shaded cells, including those in the personnel cost breakdown tables, must be filled in, either with zeros, or otherwise. THE TENDERER SHALL NOT ALTER THE INPUT IN OTHER CELLS. The tenderer shall submit the priced Schedule of Payments/Cost Matrices in both electronic and hard copy format with its tender “**offer**”.
8. Some of the “light blue” shaded items in the Schedule of Payments/Cost Matrix require a total price for the route instead of a price per Control Centre.
9. The “Grey cells” as well as the Items with “Green text” in the electronic version of the Schedule of Payments/Cost Matrix have been locked due to the items either not being applicable or not required for the specific control centres.
10. The model, in MS Office Excel format, that is used to determine the Operations and Maintenance Fee, is included in Volume 4. The payment model will automatically read the Operations and Maintenance Fee from the Schedule of Payments/Cost Matrices, which have to be completed by the tenderer. Please note that for this to happen, both of the payment model and the Schedule of Payments/Cost Matrix Files must be in the same directory.
11. The tenderer shall fill in the relevant percentage mark-up values for Provisional Sums in the place cells in column D. If the relevant percentages are not filled in the Sub-Clause 13.5 shall apply.
12. Cost items for the relevant activities/requirements in terms of the Clauses in the Contract are indicated on the Schedule of Payments/Cost Matrix. Tenderers must ensure that only costs related to the relevant cost items must be included in the specific item.
13. The tenderer must note that should there be any statutory levies that are added or removed during the contract period, it shall be added or removed from the Schedule of Payments/Cost Matrix item.
14. In the case of “Milestone dependent items”, only the “Blue shaded cell” in column “D” for the relevant items for each Control Centre(s) must be completed. The tenderer must make provision for all cost described for each item detailed in Clause 3.4 of the Standard Specifications for Operations and

Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (Volume 2 Book 7a) (October 2010). This clause also indicates the percentage payments for each item when the various milestones have occurred. Software factory acceptance test, functional compliance, provisional compliance and full compliance will be as defined in the Standard Specifications for Operations and Maintenance of CTROM projects: Toll Systems (Volume 2 Book 4a) (October 2010).

15. Should the tenderer have other costs not described in any of the appropriate items, as in the Schedule of Payments/Cost Matrix, the tenderer must allocate such costs in the most appropriate item as no additional payments related to milestone items will be made.
16. The Employer's Representative may inform the relevant sub-contractors when payments are made for the above-mentioned milestones.

## **C2.2 SCHEDULE OF PAYMENTS/COST MATRIX (INCORPORATING SBD3)**

### **Notes to Tenderer:**

- a) If the Form of Offer is submitted but the Schedule of Payments/Cost Matrix is omitted
  - i) Where rate only items are applicable.
  
- b) If a signed Form of Offer is submitted with an incomplete Schedule of Payments/Cost Matrix (no summary to tender) that does not balance back to the Form of Offer
  - i) \*Schedule of Payments/Cost Matrix incomplete
  
- c) If a signed Form of Offer is submitted with an incomplete Schedule of Payments/Cost Matrix that does not balance back to the Form of Offer
  - i) \*Only summary of Schedule of Payments/Cost Matrix submitted

**The tender submitted shall be declared non-responsive tender.**

The spreadsheet containing the Schedule of Payments/Cost Matrix is provided separately in Excel format in Volume 4.

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**PART C3:        SCOPE OF WORKS**

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**PART C3: SCOPE OF WORK**

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**SCOPE OF WORK (SECTION A) – NOT APPLICABLE**



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### C3.1.1 PROJECT OVERVIEW

#### C3.1.1.1 Toll Road and Toll Plaza

The declared N17 Toll Road, which forms part of the National Route 17 between Johannesburg and Ermelo stretches from Wemmer Pan interchange (km 0.0 on section 1) to Ermelo (km 43.1 on section 4). The total distance is approximately 199.1 km.

There are five (5) mainline Toll Plazas, and four (4) Ramp Plazas along the N17 Toll Road and the general details are summarised as follows:

Toll Plaza	Control Centre	Location	Section Chainage	km	Number of Lanes*
Ermelo Mainline	Ermelo	N17	4-43.1	54.4	4/3*
Trichardtsfontein Mainline	Trichardtsfontein	N17	3-45.25	49.8	5/4*
Leandra Mainline	Leandra	N17	3-7.0	9.0	4/4
Leandra Ramp	Leandra	N17	-3	7.8	2/2
Dalpark Mainline	Dalpark	N17	2-21.2	21.6	7/9
Denne Road Ramp	Dalpark	N17	-1	25.4	2/2
Gosforth Mainline	Gosforth	N17	2-4.1	4.2	5/6
Gosforth Local Ramps	Gosforth	N17	2-4.1	4.2	5/6
Gosforth Remote Ramps	Gosforth	N17	2-3.2	2.2	3/4

\* x/y denotes per direction (Eastbound/Westbound)

#### C3.1.1.2 Alternative Route

The following alternative routes exist:

1. Between Wemmer Pan Intersection and Anchor Rd Springs  
This section of the N17 Toll Road is located in an urban area, and there are a number of alternative routes that can be considered by road users, specifically the M46 (to the north of the N17 Toll Road) and the R554 (to the south of the N17 Toll Road).
2. Between Anchor Rd Springs and R580 Interchange (The extended N17 Toll Road)  
Between Anchor Rd Springs and R580 Interchange the R29, Ermelo Road, may be used as an alternative route.
3. Between R580 Interchange and Ermelo (The extended N17 Toll Road)  
The old N17 (R77) serves as an alternative route to the extended N17 Toll Road, only for a short section where the extended N17 Toll Road follows a new alignment.

A graphic representation of the N17 Toll Road and Alternative Route, including the Toll Plaza locations, are contained in the locality sketch enclosed in Part A1 of Volume 4.

### C3.1.2 DESCRIPTION OF THE WORKS

#### C3.1.2.1 Description of Roles and parties to this Contract

The Employer's procurement strategy includes tenders for two contracts simultaneously:

1. The first contract will be for the Main Contractor for the Operations and Maintenance of Toll Plazas on the N17 Toll Road (also known as the CTROM contract).
2. The second contract will be for the Nominated Subcontractor for the Design Build Operations and Maintenance of the Toll System for the Operations and Maintenance of Toll Plazas on the N17 Toll Road.

Once the Employer has selected the two contractors; the Main Contractor will be instructed to appoint the Nominated Subcontractor.

This Contract is the CTROM Contract for the Operations and Maintenance of Toll Plazas on the N17 Toll Road.

The terminology used for the contracts and the various roles versus the FIDIC terminology is tabled and clarified below.

**TABLE 4-1: ASSOCIATED CONTRACTS AND TERMINOLOGY**

Contract	Main Contract (MC) (CTROM Operations and Maintenance Contract)	Toll System Subcontract (NSC)	How these should be interpreted in this contract
SANRAL	<b>Employer</b>	Principal Employer	Employer
Main Contractor (MC) (Operations and Maintenance Contractor)	<b>Contractor</b>	Employer	Main Contractor
Toll System Subcontractor (NSC)	<b>Nominated Subcontractor</b>	Contractor	Nominated Subcontractor (NSC)
Employer's Representative	<b>Employer's Representative</b>	Main Contractor's (MC) Representative	Employer's Representative
SANRAL MIS System Integrator			3rd Party - SANRAL MIS System Integrator (SI)
SANRAL Toll System Integrator			3rd Party - SANRAL Toll System Integrator (SI)

1. All references to Contractor in this document refer to the Main Contractor.
2. The Nominated Subcontractor (NSC) will be appointed by the Employer but sub-contracted and managed by the Contractor.
3. All references to Main Contractor refer to the Contractor appointed for the Operations and Maintenance of Toll Plazas on the N17 Toll Road.

In the event where any ambiguity or discrepancy is found in the documents, the Employer shall be responsible to clarify this.

### **C3.1.2.2 General Description**

The description of the Works contained in this section is a general outline of the Contractor's responsibilities and shall not limit the Works to be carried out by the Contractor under this Contract.

The Employer will appoint the Contractor to design, operate, and maintain the Works. The Employer will also select a Nominated Subcontractor who will perform the Toll System Integration work as a nominated subcontractor work for the Main Contract (the CTROM contract). The Toll System Integration work shall include the design, procurement, installation, testing, and maintenance of the Toll System.

It should be noted that the Contractor and the Nominated Subcontractor (System Integrator)'s scope of works is not separated in different specifications. The Nominated Subcontractor is responsible for the Toll System and should therefore be cognisant of the Toll System specifications.

The Contractor in turn is responsible for all the Works, including the management of the Nominated Subcontractor and to ensure that the Toll System meets the contractual design and performance criteria. The Works assigned to the Nominated Subcontractor therefore form part of the Works of the Contractor.

The Nominated Subcontractor scope of works typically relates to the design, procurement, installation, testing, and maintenance of the Toll System, including the maintenance of the existing Toll System handed over at the Commencement Date.

### **C3.1.2.3 Toll Plaza Operations**

The Works include full responsibility for *inter alia* the following:

- Collection and control of toll at the various Toll Plazas.
- Traffic management.
- Financial management.

#### **C3.1.2.4 Provision and Maintenance of Employers Facilities and Permanent Design-Build**

The Works include the maintenance of all Employers Facilities and Permanent Design-Build Assets, which will remain the property of the Employer.

The Contractor shall take over, provide, or replace, where applicable, all Permanent Design-Build Assets and maintain these Assets for the duration of the Contract period. The Contractor shall take over all Employers facilities and maintain these Assets for the duration of the Operation Service Period.

In addition, the following:

##### a) General Refurbishment:

The Contractor will be required to perform a major and general refurbishment of the Gosforth, Dalpark and Denne Road Plaza buildings. Refer to the Provision Sum provided for in Section A-10015 in the Cost Matrix Schedule. The provisional sum provides for, but is not limited to:

- i. Replacement of the Kitchen equipment, including tiling
- ii. Refurbishment of the Bathrooms, including replacement of tiling
- iii. Replacement of Cupboards and Desktops
- iv. Replacement of Ceilings
- v. Replacement of the Flooring
- vi. Repainting of the buildings, in- and outside
- vii. Repainting of the roofs, replacement of gutters and corrosion treatment (where necessary).
- viii. Procurement of a building for Toll System spares and documents
- ix. Other, as required.

##### b) Replacement of damaged Employer's Assets:

The Contract allows for the repair or replacement of damaged Employer's Assets. The Contractor will be required to replace the worn carpets and vinyl of the Ermelo, Trichardtsfontein and Leandra plazas where necessary. These costs are provided for as part of the provisional sum in Section A-10001, Provision for the Repair of Employer's Assets.

##### c) Security Fencing:

The Contractor is required to install security fencing (clear view or similar) at the front of the buildings of the Eastern Plazas (i.e. Leandra, Trichardtsfontein and Ermelo Plaza) and Dalpark Toll Plaza. The Contractor shall price for the fencing as listed in Section A-7007 of the Cost Matrix Schedule.

##### d) Toll System

The Contractor shall take over and maintain the existing toll system which shall facilitate the collection and control of toll. The Contractor shall take full responsibility for retaining and for the maintenance of all portions of the existing toll systems. The Contractor shall also be responsible for the maintenance and support for the portion of the toll systems described in the Nominated Subcontract.

The Contractor is to manage, and coordinate functions related to the Nominated Subcontractor to ensure that the Contractor meets the requirements and obligation of this Contract. The Contractor must refer to part C3.2.4 for the roles and responsibilities between Contractor and the Nominated Subcontractor.

#### **C3.1.2.5 Contractor's Facilities and Equipment**

The Contractor shall provide all necessary Contractor's facilities and equipment and maintain these Assets for the duration of the Operation Service Period.

#### **C3.1.2.6 Road Incident Management Systems**

The Contractor will be required to participate in the existing Road Incident Management System (RIMS), which operates along the existing N17 Toll Road, and is currently managed by a separate contract. Refer to Part C28, Part C31 and Part C36 of Volume 4 for more details on the RIMS.

#### **C3.1.2.7 Customer Service Centre (CSC)**

The Works includes the implementation, operation and maintenance of the Customer Service Centres along the N17 Toll Road.

#### **C3.1.2.8 Video Grabbing System (VGS)**

A Video Grabbing System (VGS), as described in Volume 2 Book 2a and Volume 2 Book 4a (2006), are currently installed at all N17 Toll Plazas, to monitor queue lengths with surveillance function, record activity in the lane area and to capture images of incidents for the purpose of auditing. The system may be upgraded to incorporate other functions should it be required, by the Employer at any time during the Contract period.

The existing VGS shall be maintained until the new VGS is installed. The Contractor shall ensure that cameras are focussed, aimed and cleaned to ensure usable images and that images are available in incident control on the BOS for transaction verification.

The functionality of the existing DVSS may be incorporated in the Contractor's QLS. The DVSS and QLS is therefore seen as one deliverable."

#### **C3.1.2.9 Queue Length Monitoring System (QLS)**

There are QLS cameras installed at all N17 Toll Plazas. Refer to Part C8 and C11 of Volume 4 for the summary of the description of the system installed.

#### **C3.1.2.10 Video Grabbing System (VGS) and Queue Length Monitoring System (QLS) Remote Access Facility**

It is required that a remote access facility as stipulated in Volume 2 Book 4a for both the VGS and QLS systems be implemented, in order for the Employer's Representative and the Employer to remotely access the VGS and QLS to view historical data records and/or real time data. The Contractor shall implement the necessary means to allow for data transfer during the remote access process, over broad band (ASDL) or other means that would be approved by the Employer's Representative, at a minimum downstream speed of 10 Mbps and upstream speed of M10 bps.

The remote access facility provides the remote user with the same functionality as the user at the Toll Plaza, to query events and or incidents on the VGS and QLS servers.

The Contractor should refer to Part C11 and C13 of Volume 4 for the Toll system description and for the level of compliance of the systems installed.

#### **C3.1.2.11 Cameras**

##### **C3.1.2.11.1 Fixed Cameras**

The Contractor shall comply with the following minimum specification when installing new cameras during the Operation Service Period:

- IP (Internet Protocol) based and have a resolution of at least 1920 x 1080.
- Minimum illumination of: 0.5 lux (colour)  
0.04 lux (black and white)
- Be capable to automatically switch to infrared sensitive black and white video at low light conditions.
- Auto iris.
- Contain a progressive scan CCD image sensor.
- Support both JPEG and MPEG4.
- H264, H264+ or higher, compliant, or other non-proprietary compression algorithm approved by the Employer's Representative in addition to JPEG and MPEG4 support.
- Cameras shall have a frame rate of at least 25 fps.

- Camera images shall produce sufficient quality which enables the viewer to be able to identify Vehicle License Plates numbers accurately.
- Existing cameras may be re-used by the Contractor and can make use of IP servers or converters with the following minimum specification:
  - IP (Internet Protocol) based and have a resolution of at least 1280 x 720.
  - Support both JPEG and MPEG4.

### C3.1.2.11.2 PTZ Cameras

All PTZ cameras must comply with the following minimum specifications:

- A frame rate of at least 25 fps.
- Video resolution at least 1920 x 1080.
- Image stabilization of 10%-pixel displacement up to 10 HZ
- Minimum illumination of:
  - 0.5 lux (colour)
  - 0.03 lux (black and white)
- Auto gain controls up to 28dB – on/off.
- Adjustable auto iris.
- Support both JPEG and MPEG4.
- H264, H264+ or higher, compliant or other non-proprietary compression algorithm approved by the Employer’s Representative in addition to JPEG and MPEG4 support.
- PTE functions:
  - manual
  - sequential positions
  - auto pan
  - pre-set tours
- Zoom min 20x optical with auto focus.

The Contractor shall ensure that, as a minimum, CAT 6A cable is only utilised within the boundaries of buildings. Cabling provided for any cameras or video servers between buildings shall be connected by means of fibre optic cable or other technology as approved by the Employer’s Representative which is not prone to damage caused by electrical or lightning surges. The Contractor is also to ensure that CAT 6A (or later high-speed derivatives) or coax cable shielding be earthed at one end only or as instructed by the Contractor’s surge and lightning protection specialist.

### C3.1.2.12 Impact Attenuators

The Contractor is to maintain the existing Armco Quadguard 1240mm wide Impact Attenuators system for the design speed 60km/h (2 bay x 3 cartridges – effective length: 2,64m), for the duration of the Operation Service Period, as indicated in the following table:

Toll Plaza	Direction	Quadguard 1240mm wide
Ermelo Mainline	East/West	4/4
Trichardtsfontein Mainline	East/West	5/5
Leandra Mainline	East/West	4/4
Leandra Ramp	East/West	2/2
Dalpark Mainline	East/West	7/9
Denne Road Ramp	East/West	2/2
Gosforth Mainline	East/West	5/6
Gosforth Local Ramps	East/West	5/6
Gosforth Remote Ramps	East/West	3/4

The Contractor shall price for the maintenance and repair of the Attenuators as listed in Section A-5107 of the Cost Matrix Schedule.

Should it be necessary to replace any of the Impact Attenuators during the Operation Service Period, the Contractor shall ensure that the replacement equipment conforms to the following requirements:

- a) To EN1317 (Parts 1 to 8) and/or AASHTO MASH or NCHRP350 as alternative where no MASH product is available. Included are end wings, bullnoses and bridge adaptors to SANS 1350 and end treatments, crash cushions and transitions to rigid elements of performance-based specification compliant to EN1317 and/or AASHTO MASH or NCHRP350 as alternative where no MASH product is available.
- b) Reflective sheeting suppliers for reflector plates shall supply an official test report as per the requirements of SANS 1519-1.
- c) Suppliers of Performance Based Systems will be required to obtain from the foreign testing facility where the product was tested, a Type Approval Report and submit it to a SANS accredited Certification Body for independent verification at the cost of the supplier. Once verified, the Certification Body will conduct auditing of the product being manufactured, to ensure that it is the same product as described in the Type Approval Report, which will verify the testing report provided to the Employer Representative.
- d) The manufacturer of the Road Restrain System (RRS) will be required to issue a limited material defects warranty for a period of not less than twelve (12) months.
- e) The entity that is tasked with the installation of the RRS system, must be a certified installer and certify that the system has been installed in accordance with the manufacturers installation guidelines, in order to comply with the crash testing conditions.

The Contractor shall price for the replacement of the Attenuators as listed in Section A-5108 of the Cost Matrix Schedule.

### C3.1.3 EXPECTED GENERAL CONTRACT PROGRAMME

#### C3.1.3.1 Expected Programme

It is anticipated that the Establishment Period at all the Toll Plazas will be 6 weeks. The key milestones are as follows:

- a) Design Build Commencement Date: To be advised. Expected in April 2024.
- b) Commencement of Operation Service Period (OSP): Commissioning date of Design-Build Section 1.
- c) The duration of the OSP will be 72 months.

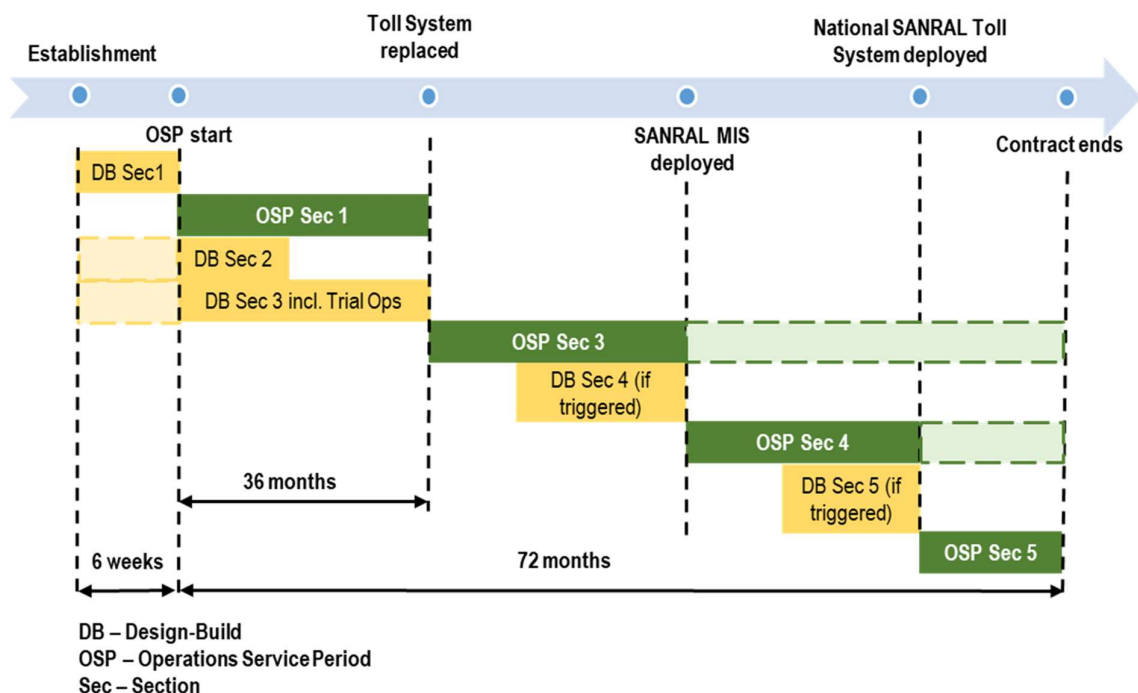


Figure 2: Graphical representation of Design Build and Operation Service Sections

### C3.1.4 CONTRACT DURATION

The Contract Period shall be for a duration of seventy-three point five (73.5) months in total, which includes the Design Build Period and Operation Service Period.

Note however that the Employer is planning to roll out their national SANRAL Toll System on all the Toll Plaza/s within the next 6 years, upon which the Nominated Subcontract SANRAL N.017-024-2019/1-NSC may terminate. The Contractor will be notified at least 6 months in advance.

### C3.1.5 OTHER EMPLOYER CONTRACTS

During the Operation Service Period, there will be other Contract(s) between the Employer and third parties executing work within this contract boundaries, such as:

**TABLE 3 : PROGRAMME OF CONTRACTS**

ROUTE		WORKS DESCRIPTION	PERIOD	
From	To		From	To
N17-1 km 0	N17- 2 km 13.0	Routine Road Maintenance	Dec 2020	Nov-2023
N17-3 km 0	N17- km 13.0	N.017-024-2012/1 MOTRM: N17 Springs to Ermelo	Dec 2020	Nov-2023
N17-3 km 0	N17- 3 km 72.2	N.017-034-2019/1	Dec 2020	Nov-2023
N17-4 km 0	N17- 4 km 17.7	MOTRM: Govan Mbeki		
N17-4 km 17.7	N17- km 55.72	N.017-040-2019/1 MOTRM: Msukaligwa 2	Dec 2020	Nov-2023
R29/Springs (km 38.7)	R50/Leandra I/C (km 7.9)	N.017-023-2019/1 MPRAC: R29/Springs to R50/Leandra I/C	May 2023	May 2024
N17 – km 4.6	N17 – km 33.45	N.017-020-2018/1 MPRMC: Rifle to Tonk Meter	April 2023	June 2024

Contracts for the refurbishment of the Toll Plaza Buildings will be carried out through a Provisional Sum, of which Gosforth and Dalpark will undergo major renovations. The Contractor is made aware that these refurbishment projects will disrupt the Contractor's "day to day" operations and the Contractor is to make allowances for these disruptions.

### C3.1.6 DRAWINGS

The available As-built drawings of key civil layouts of each Toll Plaza and for the toll system electrical, mechanical and electronic Assets are included in Part C2 of Volume 4.

Selected drawings and figures are included in Part A of Volume 4.

Available As-built drawings of the remainder of the Assets, the Toll Road, including relevant structures, roadside furniture will be made available on request after the Commencement Date at the Employer standard printing tariffs, as applicable. Drawings will, however, be made available for scrutiny during the tender period at the Employer's Northern Region offices in Pretoria, if so requested.

### C3.1.7 PENALTIES FOR NON-PERFORMANCE

In instances, where the Contractor does not comply with any specific requirement of the Contract, the Employer may:

- Apply a penalty related to the non-compliance by the Contractor to a specific requirement of the Contract as described in the Contract, for that specific item, or
- Employ a third party to perform, complete or rectify the item of non-compliance by the Contractor to a specific requirement of the Contract and to recover any costs incurred by the Employer from the Contractor.



Where the Termination of this Contract is specified as a penalty that may be applied by the Employer, the Employer may, at its sole discretion apply a penalty of ten percent (10%) of the monthly Operation and Maintenance Fee (excluding capital expenditure), per Control Centre in lieu of Termination of the Agreement.

### **C3.1.8 INTEGRATED TRANSPORTATION INFORMATION SYSTEM (ITIS)**

The Employer has developed a comprehensive information management tool called ITIS (Integrated Transportation Information System) to address all facets of its strategic and tactical planning, design, construction and maintenance of the entire road network. This provides support for the management tasks of the Employer and to allow the Employer's personnel to make technical decisions more quickly and efficiently.

ITIS is an integrated approach to the sharing and inter-relating of technical performance information for the Employer and relies on people following procedures to populate the system with data. ITIS currently consists of the following platforms:

- ITIS Web - Web enabled portal providing online access to various functions, workflows and reports.
- ITIS Desktop - Offline data capture tool enabling the capturing of information offline, validation and synchronisation of data with ITIS database.
- ITIS Mobile - Application (Android 6 or later) that allows the infield capture of information using a smart phone or tablet (must have a camera and GPS, validation of the synchronisation of data with ITIS database.

The Employer then has several ITIS modules running on any of the above ITIS platforms which affect the Contractor, who will need to use these modules to perform certain procedures to provide required information. The current modules applicable to toll operations and maintenance and their description are as follows:

- Contract Module - Management of Contracts;
- Incident Module - Recording of incidents on site;
- Project Information Module - Employment and training data; and
- Toll Module - Management of toll system data and payments

An ITIS Desktop Project information Module – User Manual is included in Part C9 of Volume 4 and User manuals for the various functions can be downloaded from <https://itisnra.co.za/Portal/Myaccount/UserManuals> after the successful registration as a Public user.

### **C3.1.9 EMPLOYER'S MANAGEMENT INFORMATION SYSTEM (SANRAL MIS)**

The Employer is currently planning to design and to develop the Employer's Management Information System (SANRAL MIS) that is expected to be rolled out on all Toll Plaza/s on the N17 Toll Road during the Operations Service Period.

The SANRAL MIS forms part of the National Back Office System that will allow for the National Management of all toll related issues that will enable the Employer to provide the Road User with a single point of contact for all toll-related activities and concerns, such as but not limited to queries, discounts, transaction payment clearing, customer care and other value-added services.

The SANRAL MIS deployment, for the purpose of this project will be implemented in two phases. The Contractor will be required to implement a complete data interface, along the line of the TCH interface, as part of the Toll System upgrade. The complete SANRAL MIS interface and integration will follow as a later phase when the SANRAL MIS development reaches the appropriate implementation level.

The Contractor will be required to adapt the standard CTROM architecture to allow for integration with the SANRAL MIS. Based on the information available to date, the expected major changes amongst others can be summarised as follows:

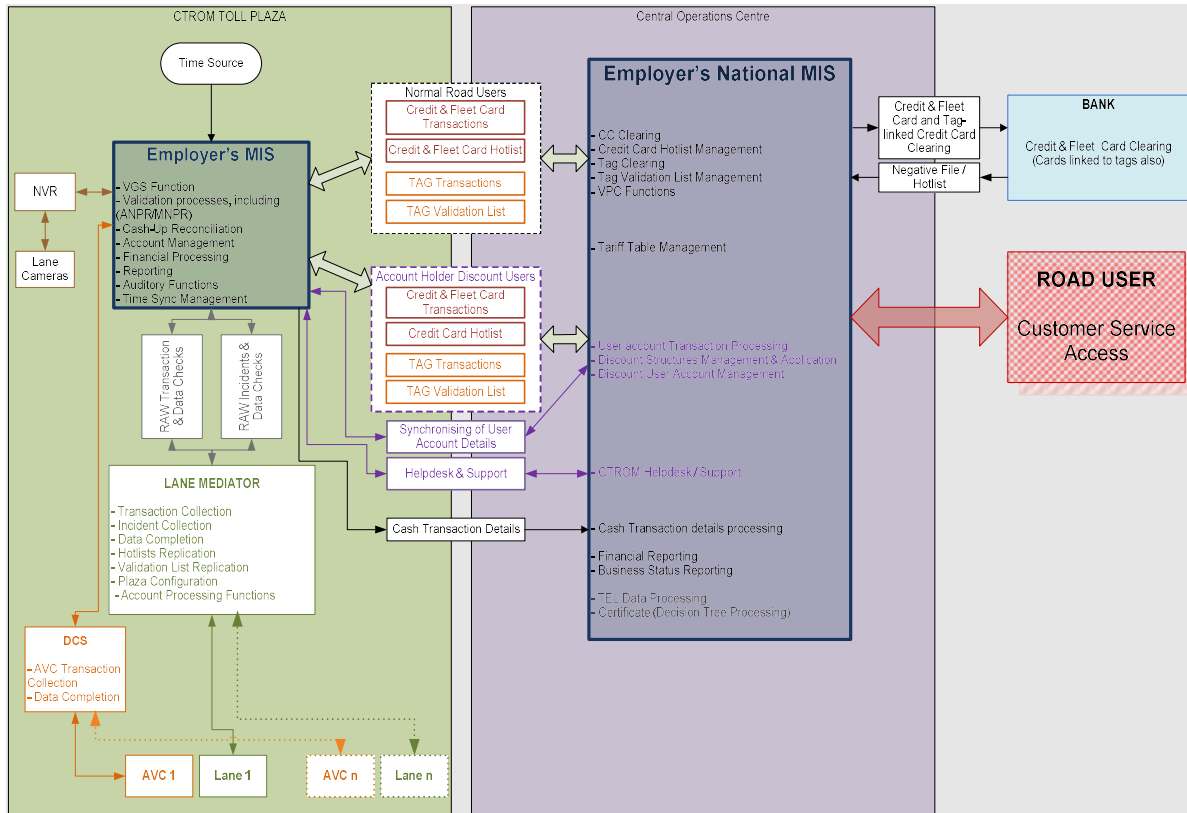
1. The Toll Plaza Back Office is to be replaced, in part or in full, with the SANRAL MIS. It shall not replace all the Toll Plaza Back Office functionality, which means that the Plaza Back Office shall become a lesser

involved system and shall be called the Lane Mediator. The functionalities that the SANRAL MIS does not take over, shall remain on the Mediation Layer. The following toll plaza related functions may remain:

- a) Control room monitoring functions.
  - b) Incident control and exception management.
  - c) Cash-up and shift control functions.
  - d) Site health monitoring and configuration control.
  - e) Local discount control.
  - f) Queue management.
  - g) VGS audits.
2. The SANRAL MIS shall therefore take over the following minimum functionality from the Back Office / CTROM equipment:
- a) Fetching of validation and negative files information and push these lists to the Lane Mediation Layer.
  - b) Manual validation and corrections of incidents, including ANPR and OCR.
  - c) Management of accounts and discounts.
  - d) Customer Service Interface(s).
3. The SANRAL MIS shall become the Toll Plaza's Time Synchronization Master.
4. Additional responsibilities shall be required from the Contractor in order to facilitate the successful change over, such as:
- a) Automated System Checks to ensure that all the communication from the Lane Mediation Layer has been communicated successfully to the SANRAL MIS
  - b) The existing VGS System must be modified to a full time Network Video Recorder only. The implementation of ANPR and OCR services shall be the responsibility of the SANRAL MIS. The Contractor shall provide the required interfacing requirements.
  - c) All Cameras shall provide clear enough images to allow for OCR and ANPR processing. This means that the VLN's must be humanly readable from the images provided by the Contractor's Toll System.
  - d) The DCS interface shall now be to the SANRAL MIS and not externally to the Employer's interface called ITIS.
  - e) Audit Logs of all interaction shall be required.

The Contractor is to make provision for coordination and assisting the SANRAL MIS System Integrator and to develop to implement the required changes to the existing Toll Plaza System which allows for the successful integration between the systems.

The diagram below provides insight on the foreseen changes required during the Contract period.



**Figure 3 : SANRAL MIS Interface**

The Contractor must make provision for the testing and coordination function to facilitate the rollout of the SANRAL MIS and must make provision for staff training on the new SANRAL MIS.

### C3.1.10 MENTORING OF TARGETED ENTERPRISE (NEW ENTRANT)

The Contractor is required to identify a sub-contractor/s who are Targeted Enterprise (TE) (New Entrant-Developing Operator) during the tendering stage, to train and develop, during the Operation Service Period. The Contractor must transfer all the skills related to all levels of toll operations and maintenance, in order for the TE (New Entrant) to be able to operate and maintain a toll plaza on his/her own.

The Contractor must provide the mentor role to the TE (New Entrant-Developing Operator) during the entire process from identifying the TE (New Entrant) to end the Operations Service Period when the TE (New Entrant-Developing Operator) has gained the necessary skills and experience for the TE (New Entrant) to ready to be tender for future toll operations and maintenance contracts.

The Contractor shall complete mentoring obligations with the following timelines:

Activity	Duration (months)
Identification and contracting	0-6 months
Training and mentoring	7-24 months
Operating under Mentoring	25-36 months
Operating independently	37 – end of contract

### **C3.1.11 MAINTENANCE OF DEDICATED ETC LANE SIGNS**

Dedicated ETC lane signs are currently installed at Dalpark and Gosforth Toll Plazas. The drawings and details of these signs are included in PS 8.5.2 of Volume 3 Book 5. The Contractor is required to maintain these signs for the duration of the Operation Service Period. If these signs get damaged either through accident and/or due to extreme weather conditions, the Contractor is required to provide a rate to replace these signs. The Contractor to refer to the Schedule of Payment/Cost Matrix for the relevant payment items.

### **C3.1.12 SANRAL TOLL SYSTEM**

The Employer intends to procure a national SANRAL Toll System.

The Employer will select the national SANRAL Toll System from one of the existing nominated subcontractors participating on any of the existing CTROM routes.

The Nominated Subcontractor, subcontracted through the Main CTROM Operations Contract, may therefore be selected as the national Nominated Subcontractor for the provision and maintenance of the SANRAL Toll System. In such a case the Nominated Subcontractor may be required, at the rates tendered by the Nominated Subcontractor for the route, to replace the nominated subcontractors on the other SANRAL routes and deploy its own Toll System.

The deployment of the SANRAL Toll System will be triggered by the Employer. The SANRAL Toll System deployment will require full integration with the SANRAL MIS.

The SANRAL Toll System will include the following Toll System components:

1. Lane System (TCC) and AVC
2. DCS
3. Back-office system (BOS) inclusive of interfaces and interface management subsystems.
4. TCH payment gateway
5. VGS
6. QLS
7. QL1

### **C3.1.13 ELECTRICAL AND MECHANICAL ASSET UPGRADES AND NEW ASSETS**

The contract allows for electrical and mechanical asset upgrades and new assets due to end of life, energy efficiency, services risk, vandalism of utility infrastructure, or legislation changes. The Cost Matrix allows for the replacing the Employers assets through either line or Provisional Sum items, depending on the Employers specific requirements in each case.

The first work package covers the provision to upgrade the existing fresh air system at Gosforth and Dalpark Control Centres. The Contractor shall appoint a professional mechanical designer to inspect and review the current fresh air systems and prepare a Preliminary Design document for review and approval before the appointed professional designer continues with the Detail Design and Tender process. The Employer may use a 3<sup>rd</sup> party to evaluate the Tenders received.

The Second work package covers the design, supply, installation, commissioning, and maintenance of a new photovoltaic (solar PV) system, including a battery energy storage system (BESS) per the Employer's requirements. The Contractor shall appoint a professional renewable energy designer to design a solar PV system with battery storage and prepare a Preliminary Design document for review and approval before the appointed professional designer continues with the Detail Design and Tender process. The Employer may use a 3<sup>rd</sup> party to evaluate the Tenders received.

The third work package covers the design, supply, installation, commissioning, and maintenance of new LED luminaires, electrical cables, security and management system at all the Toll plazas. The installation shall be hardened to limit theft and vandalism. The Contractor shall appoint professional lighting designer that shall survey all the Toll Plazas and prepare a Preliminary Design document taking the Employers requirements into consideration for review and approval before the appointed professional designer continues with the Detail Design and Tender process. The Employer may use a 3<sup>rd</sup> party to evaluate the Tenders received.

The following list provides some additional insight into assets that the Employer may wish to upgrade, improve or else obtain through this contract. Parts or complete sections of this work may already have been described in the work packages:

- B-4001 – UPS systems (if triggered). The Contractor shall provide a tendered rate for new UPS systems, should a complete replacement be required.
- B-4003 – Air-conditioning and ventilation. The Contractor shall provide a tendered rate for new high-efficient inverter technology air-conditioners as per the Employers energy efficient rollout. The Cost Matrix will include a Prov. Sum amount for the upgrading of the existing fresh air systems at Gosforth and Dalpark mainline Toll Plazas. The upgrade is required to allow proper air filtration and to improve the system efficiency.
- B-4004 – Energy meter and Power Management Software. The Contractor shall provide a SANS 474 electrical meter to measure the energy consumption at each mainline and remote ramp toll plazas before the Contractor starts with the asset upgrades or replacements. The meter shall provide the energy consumption baseline data from where the Contractor shall monitor energy avoidance.
- B-4005 – Generator (if trigger). The generators at Gosforth West and Denne Road remote ramps Toll Plazas are at the end of their functional life. The Contractor shall allow for the complete replacement of the generator should it be triggered by the Employer. The Employer also requested that generators older than 10 years be replaced and allowance were made in the Cost Matrix to replace the generators if triggered.
- B-4006-a – New generator controller. The Contractor shall provide a tendered rate to supply and install new generator controllers that shall allow communication interface with the SCADA system at Leandra and Ermelo mainline Toll Plazas
- B-4006-b – Bulk diesel storage tank. The Contractor shall design and install new above-ground diesel storage tanks at Leandra remote ramps Toll Plaza with a minimum capacity of 2200L. Bulk Fuel Tank(s) shall comply to SANS Standards and fire remedial measures shall be maintained at all times.
- B-4008 – Control building ceiling insulation. Thermal insulation shall be added to the building roofs at Gosforth and Dalpark Mainline toll plazas to assist with energy consumption avoidance by improving the building insulation. The Contractor shall provide a tendered rate to supply and install new roof insulation as per Part C3 of the Tender.
- B-4010 – Fire detection system. The Contractor shall provide a tendered rate to upgrade the old fire detection systems at Gosforth West, Gosforth Mainline, Dalpark Mainline and Denne Road Toll Plazas.
- B-4011 – SCADA system. To ensure all systems are monitored and managed according to the specification, the Contractor shall implement a Supervisory Control and Data Acquisition (SCADA) system at each Control Centre. The SCADA system interfaces with existing (where possible) and new assets provided or upgraded. The SCADA system will use the data to provide real-time status, electrical monitor system performance and provide notifications on events.
- B-4012 – Power skirting. The Contractor shall upgrade the power skirting at Gosforth and Dalpark Mainline Toll Plazas.
- B-4012 – Solar Photovoltaic (PV) installation. Photovoltaic (PV) with battery energy storage system (BESS). Due to the current and future power supply constraints in the local and national electricity network, the Contractor shall design and supply new PV and battery storage solutions or use during peak periods and for energy avoidance. The Employer is committed to reducing carbon emissions in line with South Africa's Low Emission Development Strategy (LEDS). The Cost Matrix will include a Prov. Sum amount for the proposed new PV system.
- B-4013 – Heat pump. The Contractor shall provide a tendered rate for upgrading the existing water heating system (Geyser) by adding a heat pump to the system to provide a more energy-efficient solution at Leandra, Trichardtsfontein, and Ermelo Mainline Toll Plazas.
- B-4014 – New solar PV carports. The Contractor shall supply and install new solar PV type carports at all the toll plazas except Gosforth West Remote Ramps, Dalpark Mainline, Denne Road and Leandra Remote Ramps Toll Plazas. The Cost Matrix will include a Prov. Sum amount for the proposed new PV carports.
- B-4015 – Road lighting poles. The Contractor shall provide a tendered rate for the supply and installation of new street light poles to replace damaged poles when required.

- B-4016 – Security cameras. The Contractor shall manage the risk of vandalism and theft of the Employers Assets. The Contractor shall supply, install and monitor wireless and battery-operated security cameras with motion detection or analytics. The cameras monitor specific remote areas and can be relocated to other sites when required. In addition, the Contractor shall provide an active control room (monitoring centre) to review video footage for a proactive response.
- B-4021 – New LED luminaires compete. The Contractor shall replace the existing luminaires inside the control building at Gosforth mainline and Dalpark mainline and Denne Road Toll Plazas based on the Contractors approved detail design with new LED technology luminaires.
- B-4022 – LED lamps for luminaires. The Contractor shall replace the lamps in the existing luminaires at Ermelo mainline, Trichardtsfontein mainline and Leandra Mainline Toll Plaza control buildings based on the Contractors approved detail design with new LED technology luminaires.
- B-4023 – Sump pump (Spare and portable). The Contractor shall provide a spare sump pump to be shared between Leandra, Trichardtsfontein, and Ermelo. A complete portable sump pump shall also be provided to use on the route.
- B-4024 – Alarm annunciator panel. The Contractor shall provide a tendered rate to upgrade the old alarm annunciator panes at Gosforth West, Gosforth Mainline, Dalpark Mainline and Denne Road Toll Plazas with new panels.
- B-4026 – Tunnel security screen. The tunnel security screen is making maintenance on the grid tied inverters difficult and the Contractor shall tender a rate to provide a new security door to the section where the screens were removed for the installation of inverters.
- B4027 – Utility power supply (if triggered). The Contractor shall provide a tendered rate to supply and install new medium voltage (MV) electrical cable complete or sections triggered by the Employer due to theft or vandalism at Gosforth Mainline Toll Plazas.
- B-4028 – Canopy cat ladder. The Contractor shall provide a tendered rate to supply and install new cat ladders to access the lane canopy at Denne Road remote ramps Toll Plaza.
- B-5001 – Access control. The Contactor shall upgrade the access control systems through software, firmware, and hardware at all the plazas to comply with the 2010 CTROM specification.
- Other payment items are provided for but not listed above.

The Cost Matrix schedule allows upgrading the area and road lighting, canopy lighting and the new fresh air systems under the Prov. Sum item for Electrical and Mechanical asset upgrades.

The intention of most of the different electrical and energy asset upgrades and new assets to be provided, including monitoring, control, and reporting, is to improve the overall energy efficiency of the Toll Plaza. The image below provides an overview of the different monitoring and control systems with reference clauses to achieve the energy management solution. The Contractor can deploy one energy monitoring and control system to fulfil two or more functions. The energy monitoring and control solution may not need to be separate systems and shall be reviewed through the Contractor's Preliminary and Detailed Design process.

Timeframe for asset upgrades from the Commencement Date														
Item	Plaza	Months												Comments
		1	2	3	4	5	6	7	8	9	10	11	12	
<b>Building inside</b>														
B4001	All													UPS systems (if triggered)
B4003	All													Air-conditioning
B4004	All													Energy meter
B4005	All													Generator (If trigger)
B4006	GW, DM, DR, LM & EM													New Generator controllers
B4008	GM & DM													Ceiling insulation
B4009	GM & DM													Power skirting
B4010	GW, GM, DM & DR													Fire detection system
B4011	All													SCADA/BMS system

B4022	GW & DM																			New LED luminaires complete
B402	LM, TM & EM																			LED lamps for luminaires
B4024	All																			Sump pump (spare + portable)
B4025	GW, GM, DM & DR																			Alarm annunciator panel
B4026	GM & DM																			Tunnel security screens
B5001	All																			Assess control
<b>Building outside</b>																				
B4012	All																			Solar PV installation
B4013	LM, TM & EM																			Heat pump
B4014	GM, LM, TM & EM																			New solar PV carports
B4015	LM, TM & EM																			Road lighting poles (if triggered)
B4026	GM & DR																			Utility power supply (if triggered)
<b>Lane area</b>																				
B4027	DR																			Cat ladder
B4025	All																			GSM Security cameras
GW	Gosforth Wert Remote Ramps								LR	Leandra Remote Ramps										
GM	Gosforth Mainline								LM	Leandra Mainline										
DM	Dalpark Mainline								TM	Trichardtsfontein Mainline										
DR	Denne Road Remote Ramps								EM	Ermelo Mainline										

## TOLL PLAZA ENERGY MANAGEMENT IMPLEMENTATION

Energy Monitoring and Energy Control  
Optimize energy usage between the Utility,  
Generator, Solar PV and the BESS.

Energy - PS3  
Generator - PS17  
Photovoltaic - PS37  
BESS - PS37

Energy & Power Management &  
Control  
PS3 & PS37

Visualization & Energy Monitoring & Reporting

Energy - PS3  
Generator - PS17  
UPS - PS16  
Sensors/Temp - PS18  
Fresh air - PS29  
Photovoltaic - PS37  
BESS - PS37  
Control: Area, Road, Canopy, & Fog  
Lighting

SCADA System  
PS18

Photovoltaic System  
Solar PV & BESS  
PS37

Energy Avoidance and Storage

Energy - PS3  
Photovoltaic - PS37  
BESS - PS37



**PART C3.2 PARTICULAR SPECIFICATIONS FOR TOLL OPERATIONS AND MAINTENANCE  
(SECTION B)**

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## PART C3.2 PARTICULAR SPECIFICATIONS FOR TOLL OPERATIONS AND MAINTENANCE (SECTION B)

In certain Clauses the Standard Specifications allow a choice to be specified in the Scope of Work between alternative materials or methods of operations and maintenance and for additional requirements to be specified to suit a particular Contract. Details of such alternatives or additional requirements applicable to the contract and some additional specifications required for this particular Contract are contained in this section of the Scope of Works as particular specifications.

### C3.2.1 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATIONS FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: GLOSSARY OF TERMS AND GENERIC SCOPE OF WORKS

The number of each Clause as a Particular Specification in this section consists of Prefix PS, followed by a number corresponding to the number of the relevant Clause in the Standard Specification for Operations and Maintenance of CTROM Projects: Glossary of Terms and Generic Scope of Works, (Volume 2 Book 1a). The number of any new Clause which does not form part of any Clause in the Standard Specifications for Operations and Maintenance of CTROM Projects: Glossary of Terms and Generic Scope of Works (Volume 2 Book 1a), and which is included herein, is also prefixed by PS followed by a new number. Such new number follow on the last Clause used in the relevant section of the Standard Specifications for Operations and Maintenance of CTROM Projects: Glossary of Terms and Generic Scope of work (Volume 2 Book 1a).

#### PART A: GLOSSARY OF TERMS

##### PS3 DEFINITIONS

Add or replace the following definitions:

**“Base date”**

*The Base Date month shall be March 2024.*

**“Control Centre”**

*The existing Control Centres are listed in the following table:*

<b>TOLL PLAZAS</b>	<b>CONTROL CENTRE</b>
<i>Ermelo Mainline Toll Plaza</i>	<i>Ermelo Control Building</i>
<i>Trichardtsfontein Mainline Toll Plaza</i>	<i>Trichardtsfontein Control Building</i>
<i>Leandra Mainline Toll Plaza</i>	<i>Leandra Control Building</i>
<i>Leandra Ramp Toll Plaza</i>	
<i>Dalpark Mainline Toll Plaza</i>	<i>Dalpark Control Building</i>
<i>Denne Road Ramp Toll Plaza</i>	
<i>Gosforth Mainline Toll Plaza</i>	<i>Gosforth Control Building</i>
<i>Gosforth Local Ramp Toll Plaza</i>	
<i>Gosforth West Ramp Toll Plaza</i>	

**“Customer Service Kiosk”**

*In this Contract references will be made to “Customer Service Kiosk” or “Customer Service Centre” which is the same facility.*

### **“Lane Area”**

The extent of the Lane Area for each Toll Plaza along the N17 Toll Road is detailed in the drawings included in Part A4 of Volume 4.

### **“SANRAL MIS”**

Means the centralised management information system developed by the Employer through a 3<sup>rd</sup> party contract, that allows a Toll Agency to execute the administration, accounting, transaction processing, control and management functions of the toll collection process in a computerised way. The management information system, *inter alia*, exchanges information with the Nominated Subcontractor’s Toll System to enable centralised information and control. In the case where ETC is catered for, the Nominated Subcontractor’s Back Office shall be required to interface to the TCH, which shall manage all ETC accounts nationally.

### **“SANRAL Toll System”**

Means the Toll System selected from a nominated subcontractor contracted on one of the CTROM routes. SANRAL intends to standardise this selected system on all the CTROM routes nationally. This system will typically include the lane, AVC, VGS, QLS and limited BOS functionality interfaced to the SANRAL MIS. The provision of the SANRAL Toll System will be triggered by the Employer and will be procured at the tendered rates within the applicable nominated subcontract.

### **“Road”**

The road comprises of the following sections:

<b>N17 TOLL ROAD</b>				
<b>ROUTE</b>	<b>SECTION</b>	<b>FROM (KM)</b>	<b>TO (KM)</b>	<b>LENGTH (KM)</b>
N17	1	0.0	8.4	8.4
	2	0.0	79.6	79.6
	3	0.0	68.0	68.0
	4	0.0	43.1	43.1
TOTAL				199.1

### **“Site for Operations and Maintenance”**

The extent of the site for Operations and Maintenance shall include the existing Toll Plaza(s) on the N17 Toll Road with associated Employer Facilities, as indicated in the drawings included in Part A4 of Volume 4.

### **“Toll Plaza”**

The Toll Plazas that form part of this contract are listed in the following table:

<b>TOLL PLAZAS</b>	<b>LOCATION</b>
Ermelo Mainline Toll Plaza	N17-4; km 54,4
Trichardtsfontein Mainline Toll Plaza	N17-3; km 49,8
Leandra Mainline Toll Plaza	N17 -3; km 9,0
Leandra Ramp Toll Plazas	N17-3; km 7,8
Dalpark Mainline Toll Plaza	N17-2; km 21,6
Denne Road Ramp Toll Plazas	N17-2; km 25,4
Gosforth Mainline Toll Plaza	N17- 2; km 4,2
Gosforth Local Ramp Toll Plaza	N17- 2; km 4,2
Gosforth West Ramp Toll Plazas	N17- 2; km 2,2

*The extent of the Toll Plaza(s) on the N17 Toll Road is detailed in the drawings included in Part A4 of Volume 4.*

**“Toll Road”**

*The extent of the N17 Toll Road shall be the National Road Reserve Boundaries from the Road Wemmer Pan interchange (km 0,0 section N17-1) to Ermelo (km 43.1 section N17-4)*

## **C3.2.2 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATION FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: GENERAL (VOLUME 2 BOOK 2A)**

The number of each Clause as a particular specification in this section consists of the prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a). The number of any new Clause which does not form part of any Clause in the Standard Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), and which is included herein, is also prefixed by PS followed by a new number. Such new numbers follow on the last Clause used in the relevant section of the Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a).

### **PS2 PROJECT COMMENCEMENT: HANDOVER AND PROVISION OF DOCUMENTS**

#### **PS2.2 Employer's Documents, Drawings and Software**

##### **PS2.2.1 General**

###### **PS2.2.1.2 As-Built Drawings**

A list of available As-built drawings for existing Toll Plaza(s) is contained in Part C2 of Volume 4.

###### **PS2.2.1.3 Equipment User Manuals**

A list of available equipment user manuals is contained in Part C3 of Volume 4.

###### **PS2.2.1.4 Equipment Supplier's Manuals**

A list of available equipment supplier manuals is contained in Part C3 of Volume 4.

###### **PS2.2.1.5 Software and Software User Manuals**

The current software licences for the toll system are in the name of the Employer. The Contractor may utilise the existing software and associated licences.

A list of available software and software user manuals is contained in Part C3 of Volume 4.

The list of current software contractors is included in Part B1 of Volume 4.

##### **PS2.2.2 Electrical Certificate of Compliance**

The Electrical Certificate of Compliance for each of the existing Toll Plazas is contained in Part C6 of Volume 4.

##### **PS2.2.3 Asset Register**

The provisional Asset Registers per discipline (i.e. general operations, civil, electrical and mechanical, toll collection lane equipment and MIS), are included in Part C4 of Volume 4.

The Contractor Asset Management System (AMS) must be able to print the Assets in a "rolled-up" format for ITIS submission and in "rolled-down", detailed format when submitting to the Employer Representative.

The existing Employer format of the Asset Management System (AMS) to be implemented by the Contractor is included in Part C5 of Volume 4.

The Contractor is to note that the Employer is currently reviewing the reporting format of ITIS and it may change during the Operation Service Period.

##### **PS2.3.2.1 Software Licenses**

Replace this clause with the following:

*“The Contractor and /or Nominated Subcontractor shall comply with the licencing obligations pursuant to Sub-Clause 1.11 [Employer’s Use of Contractor’s Documents] of the FIDIC DBO Conditions of Contract and the requirements regarding proprietary Software Licences and Escrow agreements as specified in the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a).*

*All Toll System and Sub-System Licenses shall be perpetual (no expiry date), transferable, non-terminable, non-exclusive, royalty-free and unrestrictive. Other Software from third parties and Software complimentary to the Toll System, but not specifically developed as a Toll System component, shall be valid until the end of the Contract, or, whichever is the latest, valid until the end of the next Contract’s Design Build period. All off the shelf Software with a license which gets renewed on a yearly basis and requires no specific toll related expertise to update, shall be valid until the end of the Contract period. Software which may influence the Toll System functionality when upgraded, such as operating systems, shall be valid until the end of the next Contract’s Design Build period.*

<i>Software Descriptions</i>	<i>Perpetual</i>	<i>End of Contract</i>	<i>End of Contract +3 years</i>
<i>Toll System Software Developed by Contractor / System Integrator</i>			
<i>Back Office / MIS</i>	X		
<i>LSDU</i>	X		
<i>Back Office / MIS Interfaces</i>	X		
<i>Lane</i>	X		
<i>AVC</i>	X		
<i>DCS</i>	X		
<i>VGS</i>	X		
<i>QLS</i>	X		
<i>Other Software Complimentary to the Toll System</i>			
<i>Operating Systems</i>			X
<i>Anti-Virus Software</i>		X	
<i>Microsoft Office Products</i>		X	
<i>Helpdesk</i>			X
<i>Asset Management System</i>		X	
<i>Network Management Software</i>			X
<i>All firmware</i>			X

*All Licenses which will roll over into the next Contract period, shall be transferred to the Employer at successful commissioning of the respective equipment and/or systems or in the event of Contract termination.”*

**PS3 OPERATIONAL FOOTPRINT**

**PS3.1.2 Permanent and temporary customer service kiosks**

The permanent Customer Service Centre has been installed by the Employer and is currently, systematically managed by the Employer’s TCH Contractor, ETC (Pty) Ltd in the Administration Office in the control building of each of the N17 Mainline Toll Plazas.

The Contractor is required to provide staff and the first line technical support at the Customer Service Centre installed at the above Toll Plazas.

If instructed by the Employer, the Contractor is to identify area(s)/location(s) along the N17 Toll Road, for possible temporary Customer Service Centre(s). Provision for the cost related to the temporary Customer Service Centre(s), have been made in the Schedule of Payments/Cost Matrix.

**PS3.2.1 Conventional/ORT and ORT Footprint**

The Contractor may use the control building at the existing Toll Plaza/s as the Central Operations Centre for the project. However, should the Contractor choose to use any other venue as a Central Operations Centre, the costs related to this facility shall be to the Contractor's account for the duration of the Contract period.

If instructed by the Employer, the Contractor is to identify area(s)/location(s) along the N17 Toll Road for possible temporary Customer Service Centre(s). Provision for the cost related to the temporary Customer Service Centre(s) have been made in the Schedule of Payments/Cost Matrix.

#### **PS3.4.1.2 (b)**

If instructed by the Employer, the Contractor is to identify area(s)/location(s) along the N17 Toll Road for possible temporary Customer Service Centre(s). Provision for the cost related to the temporary Customer Service Centre(s) have been made in the Schedule of Payments/Cost Matrix.

### **PS4 TOLL PLAZA EXPANSIONS AND UPGRADES, ROAD IMPROVEMENTS AND OTHER IMPROVEMENTS**

#### **PS4.1.1 The Toll Plaza expansion schedule**

The existing Toll Plazas expansion schedule are provided schematically in **Part C7 of Volume 4**.

The proposed reconfiguration of existing Toll Plazas with mixed Manual/ETC and Dedicated ETC lanes are indicated in Volume 4 Part C7.

The Employer will however appoint service providers separately for the future Toll Plaza Expansions civil works, but the Toll system lane equipment should be provided under the NSC when triggered and all capacity driven systems such as, but not limited to, the Back Office system, network, fibre link, intercom, DCS, LSDU, VGS, QLS, etc should be designed with sufficient capacity to accommodate the anticipated expansions.

The Employer will however appoint service providers separately for the future Toll Plaza Expansions civil works, but the Toll system lane equipment should be provided under the NSC when triggered and all capacity driven systems such as, but not limited to, the Back Office system, network, fibre link, intercom, DCS, LSDU, VGS, QLS, etc should be designed with sufficient capacity to accommodate the anticipated expansions.

**For** the Gosforth Local Ramps westbound, the Contractor will perform the following reconfigurations together with the Toll System upgrade:

- Lane 24W: Change from the current Mixed/manual/ETC lane to a Dedicated ETC lane;
- Lane 25W: Change from the current Dedicated ETC lane to a card-only lane;
- Lane 26W: Change from the current card-only lane to a Mixed/manual/ETC lane;

#### **PS4.1.1.3(J)**

The queuing theory function shall be made available on request.

#### **PS4.4.1 Road Improvements Schedule**

##### **PS4.4.1.2**

No road improvements are scheduled or planned for the duration of the Operations Service Period.

#### **PS4.5 Other Improvements**

Add the following Clause:

##### ***“PS4.5.2 Toll Plaza Security Upgrade and Refurbishment***

*The Employer is reviewing and is considering upgrading the Employers Facilities to improve the Toll Plaza security and facilities.*

*A major and general refurbishment shall be done at the Gosforth, Dalpark and Denne Road Plaza buildings.*

The Contractor is to make provisions for the impact these improvements will have on the Contractors “day to day” operations.

Please note, the Employer planned improvements to security does not relieve the Contractor responsibilities as stated in Clause 15.4 in the Standard Specifications for Operations and Maintenance for CTROM Projects: General (Volume 2 Book 2a).”

**PS5 ESTABLISHMENT**

**PS5.1.1 Contractor’s General Establishment Responsibilities**

The Contractor will have one establishment phase in this Contract which is defined as follows:

Design Build – Section 1: The Establishment Period at all the Toll Plaza/s on the N17 toll road is expected to be between April 2024 and May 2024. Refer to PART C1 for Design Build section data.

Add the following clause 5.1.2.1.3:

**“PS 5.1.2.1.3 Contractor’s Minimum Personnel requirements**

- (a) The required personnel shall as a minimum meet the below stated Qualification and Training requirements.
- (b) The Contractor and/or Nominated Subcontractor shall make provision for the cost of employing the required personnel with the stated minimum requirements in his rates and this cost shall not be specifically measured for payment.

<b>PERSONNEL CATEGORY</b>	<b>REQUIRED QUALIFICATION AND TRAINING</b>
1. Assistant Technician (Electronic)	HEQSF* level 5 (Referring to a minimum qualification of a higher certificate or advanced certificate) in electronics or similar Basic electricity safety awareness Six months practical experience
2. Technician (Electronic)	HEQSF* level 6 National Diploma in Information Technology, Electronic Engineering, Computer Engineering, Digital Technology or Instrumentation and Process Control or similar accredited diploma Preferably registered with the Engineering Council of SA (ECSA) or similar accredited institution Minimum one year experience in similar technical field or proof of logbooks from practical period for Diploma Extensive knowledge in electricity safety Access to transport between Plazas with a valid driver’s licence
3. Senior Technician (Electronic)	HEQSF* level 6 National Diploma in Information Technology, Electronic Engineering, Computer Engineering, Digital Technology or Instrumentation and Process Control or similar accredited diploma Preferably registered with the Engineering Council of SA (ECSA) or similar accredited institution Minimum of three years related technical experience Extensive knowledge in electricity safety Access to transport between Plazas a valid driver’s licence Minimum of 2 years of experience in managing staff and resources
4. Construction Health and Safety Officer	NQF Level 6 National Diploma in Safety Management (NDS MN) equivalent training course as a minimum qualification.



	<p><i>Preferably registered with the South African Council for the Project and Construction Management Professions (SACPMP).</i></p> <p><i>Minimum five (5) years of experience with regards to implementing and maintaining a health and safety management system compliant.</i></p> <p><i>Access to transport between Toll Plazas with a valid driver's licence.</i></p>
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Note: \*Reference to the Engineering Qualifications and the Higher Education Qualifications sub-framework (HEQSF) presentation by ECSA (<http://www.sasee.org.za/CMS/WP-content/uploads/2014/07/HEQSF-And-Engineering-Qualifications-B-van-Wyk.PDF>)

**PS5.1.3.1(d)(i)**

The minimum traffic management aids to be provided by the Contractor are listed below the table:

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Ermelo Toll Plaza:	
Emergency Luminaries for Control Building	10
Emergency Luminaries for Toll Booths	12
Stop-watch	1
Three-cell torch	2
Day glow orange traffic cone	25
Lane open/closed signs	12
Reflective safety vests	10
Reflective safety sleeves	6
Reflectorized barricades	8
Dry cell battery operated amber flashing units	14

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Trichardtsfontein Toll Plaza:	
Emergency Luminaries for Control Building	10
Emergency Luminaries for Toll Booths	12
Stop-watch	1
Three-cell torch	2
Day glow orange traffic cone	25
Lane open/closed signs	12
Reflective safety vests	10
Reflective safety sleeves	6
Reflectorized barricades	8
Dry cell battery operated amber flashing units	14

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Leandra Toll Plaza:	
Emergency Luminaries for Control Building	10
Emergency Luminaries for Toll Booths	12
Stop-watch	1
Three-cell torch	2
Day glow orange traffic cone	25
Lane open / closed signs	12
Reflective safety vests	10
Reflective safety sleeves	6
Reflectorized barricades	8
Dry cell battery operated amber flashing units	14

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Leandra Remote Ramp Toll Plazas:	
Emergency Luminaries for Control Building	0

Emergency Luminaries for Toll Booths	2/2
Stop-watch	1
Three-cell torch	2
Day glow orange traffic cone	4/4
Lane open / closed signs	2/2
Reflective safety vests	1/1
Reflective safety sleeves	1/1
Reflectorized barricades	2/2
Dry cell battery operated amber flashing units	2/2

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Denne Road Toll Plazas:	
Emergency Luminaries for Control Building	1
Emergency Luminaries for Toll Booths	2/2
Stop-watch	1
Three-cell torch	2
Day glow orange traffic cone	25
Lane open / closed signs	2/2
Reflective safety vests	1/1
Reflective safety sleeves	1/1
Reflectorized barricades	2/2
Dry cell battery operated amber flashing units	2/2

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Dalpark Toll Plaza:	
Emergency Luminaries for Control Building	10
Emergency Luminaries for Toll Booths	16
Stop-watch	1
Three-cell torch	3
Day glow orange traffic cone	30
Lane open / closed signs	18
Reflective safety vests	10
Reflective safety sleeves	6
Reflectorized barricades	8
Dry cell battery operated amber flashing units	20

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Gosforth Toll Plaza:	
Emergency Luminaries for Control Building	15
Emergency Luminaries for Toll Booths	22
Stop-watch	1
Three-cell torch	4
Day glow orange traffic cone	44
Lane open / closed signs	22
Reflective safety vests	15
Reflective safety sleeves	9
Reflectorized barricades	12
Dry cell battery operated amber flashing units	22

<b>Traffic Management Aids</b>	<b>Minimum Required</b>
Gosforth Remote Ramp Toll Plazas:	
Emergency Luminaries for Control Building	0/0
Emergency Luminaries for Toll booths	3/4
Stop-watch	1/1
Three-cell torch	2/2

Day glow orange traffic cone	3/4
Lane open / close signs	3/4
Reflective safety vests	3/4
Reflective safety sleeves	1/1
Reflectorized barricades	2/2
Dry cell battery operated amber flashing units	3/4

### Traffic Management Aid Specifications

**Day-glow orange traffic cones** seven hundred and fifty millimetres (750mm) high with one full reflective sleeve about one hundred and fifty millimetres (150mm) long in sufficient numbers so that, when placed at 3m distance, they demarcate one separate Lane the length of the Toll Plaza. Such cones shall, when not in use, be stored in a place which may be accessed easily by the Responsible Person.

The Contractor shall provide **emergency luminaries** that can be fixed or portable to operate the Toll Plaza under emergency conditions until the power is restored to the Toll Plaza or to a specific area. The luminaries shall provide sufficient luminance (LUX) for the Contractor to safely operate the Toll Plaza or specific area until the power is restored. The Contractor shall provide a minimum of twenty-five (25) LUX vertical and horizontal in the toll booth to service the Road User and fifty (50) LUX vertical and horizontal in the control building. The Contractor may need to install or provide more than one luminary to obtain the minimum illumination for a specific area.

Dry-cell battery operated **amber flashing units** suitable for hazard warning and sufficiently bright to be conspicuously visible up to a distance of two hundred and fifty meters (250m) during the hours of darkness, in numbers sufficient for the bullnose of each toll island plus reserves. The unit shall have bi-directional lenses, be of robust construction using impact resistant materials, and shall have the flashing light mounted on the battery compartment required to power the light.

**Reflective safety equipment** for personnel working in the toll lanes and/or directing traffic or assisting Road Users in the lanes:

- (i) Employees working in the toll lanes cleaning inter alia toll booths, barriers:
  - Dayglow orange safety vest with three (3) yellow reflective chevrons on the front and back of the vest that also extend around the side of the vest.
- (ii) Employees working in the roadway in front of the toll lanes or in the lanes assisting road Users with disabled vehicles or with the completion of documentation such as invoices:
  - Dayglow orange safety vest with three (3) yellow reflective chevrons on the front and back of the vest that also extend around the side of the vest.
- (iii) Contractor's personnel working in the toll lanes or on the roadway directing traffic and/or any other person visiting or inspecting the lane area:
  - Dayglow safety vest as specified above, plus:
    - Dayglow orange safety sleeves with three transverse yellow reflective stripes extending around the sleeve; and
    - Two three cell torches.

**Stop-watch**, a hundredth of a second stopwatch and an alarm clock that can be set accurately to one minute of an hour.

**Lane Open/Closed Signs**, are to be free-standing and resistant to gusting winds up to 120km/hr. The sign is to be reversible, with one side indicating "Lane closed" by means of an R3 traffic sign, and the other side indicating "Lane open" by means of an R405/6 traffic sign.

The Contractor shall provide all necessary equipment relating to fire extinguishers as per the requirements of the applicable Authority.

Median Barriers (or traffic separators) act as a safety measure to prevent motorists from entering a toll lane which is operating in the opposite direction to the motorist's direction of travel, and thereby preventing possible head-on collisions with the traffic arriving at the Toll Plaza from the other direction.

Median Barriers or Traffic separators, are to be installed at Ermelo and Trichardtsfontein Mainline Toll Plazas within the first month of the Contract. These median barriers are described below:

- Starting at the Lane Bull Nose for a distance of thirty-six (36) metre away from the Toll Lanes, “Blue Key Guide Curb LN60 and the Leitboy IV Delineator, or similar product, at three (3) metre centres.
- From the end of the thirty-six (36) metre and for a further nine (9) metre “Blue Key Guide Curb LN60 and the Leitboy IV Delineator, or similar product, are to be installed. The Guide Curbs are to be fixed to the road for the full nine (9) metre and the delineators are to be placed at three (3) metre centres.

Leandra Toll Plaza has the following median barriers installed, which shall be managed and maintained by the Contractor and returned to the Employer at end to the Operation Service Period:

- Western Side of the Toll Plaza - “Blue Key Guide Curb LN60 and the Leitboy IV Delineator”, or similar product, at three (3) metre centres for a distance of thirty-six (36) metre away from the Toll Lanes and then continuous “Blue Key Guide Curb LN60”, or similar product, fixed to the road for the next nine (9) metre (to the start of the barrier) with the “Leitboy IV Delineators”, or similar product, placed at three (3) metre centres.
- Eastern Side of the Toll Plaza - “Blue Key Guide Curb LN60 and the Leitboy IV Delineator”, or similar product, at three (3) metre centres for a distance of seventy (70) metre away from the Toll Lanes and then continuous “Blue Key Guide Curb LN60”, or similar product, fixed to the road for the next thirty (30) metre with the “Leitboy IV Delineators”, or similar product, placed at three (3) metre centres.

Dalpark Toll Plaza has the following median barriers installed which shall be managed and maintained by the Contractor and returned to the Employer at end to the Operation Service Period:

- Western Side of the Toll Plaza – “Continuous Blue Key Guide Curb LN60”, or similar product, fixed to the road for a distance of ninety-six (96) metres away from the Toll Lanes with the “Leitboy IV Delineators”, or similar product, placed at three (3) metre centres.
- Eastern Side of the Toll Plaza - “Continuous Blue Key Guide Curb LN60”, or similar product, fixed to the road for a distance of one hundred and five (105) metres away from the Toll Lanes with the “Leitboy IV Delineators”, or similar product, placed at three (3) metre centres.

The Contractor is to install new median barriers at Gosforth Mainline Toll Plazas (West Bound), on the east side dividing island, within the first month of the Contract. These median barriers are described below:

- Starting at the end of the island, and for a distance of ten (10) metre to the east (to the point of the painted island), the Contractor shall install 2 rows of continuous “Blue Key Guide Curb LN60 with the Leitboy IV Delineator”, or similar product, at one (1) metre centres. These separators are to form a triangle with the point at the painted island point and the 3rd side the width of the concrete Island. Standing at the point the delineators on the left are to point to the left and those on the right, to the right.
- Again, starting at the end of the island, and for a distance of five (5) metre to the west (to the point of the painted island), the Contractor shall install 2 rows of continuous “Blue Key Guide Curb LN60 with the Leitboy IV Delineator”, or similar product, at one (1) metre centres.
- The Contractor shall manage and maintain the 2 sets of median barriers installed in the gap in dividing island thirty (30) metre from the Toll Plaza the east side.

## PRODUCT TYPE DESCRIPTION

Guide Curb LN60 or similar	1000 * 270, yellow in colour, interlocking with adjacent unit and fixed to the road surface.
End Piece A	440 *270, yellow in colour, interlocking with adjacent unit and fixed to the road surface.
End Piece B	440 *270, yellow in colour, interlocking with adjacent unit and fixed to the road surface.
Leitboy IV or similar	Fitted with three (3) meter class III red and white chevron prismatic material. Delineators are to be located every three (3) metres.
Reflective Arch	Yellow with four (4) cat eyes located every three (3) metres.
Traffic Cones	Orange one (1) metre high with 150mm reflective sleeves, located every two (2) metre.

These median barriers will form part of the Employer's Equipment and shall be managed and maintained by the Contractor and returned to the Employer at end to the Operation Service Period.

The Contractor is to maintain a minimum of five (5) of each of replacement traffic separator type at the Toll Plaza.

The extent of these median barriers are barriers is shown on drawings that are included in Part C26 of Volume 4.

#### **PS5.5 Contractor's Business Continuity Plan Responsibilities**

The Contractor is to provide a Business Continuity Plan which must be included in the list of documents to be provided during the Establishment Period.

### **PS6 OPERATIONS PERIOD – TRANSACTION MANAGEMENT AND PROCESSING**

#### **PS6.1.1.3**

The Vehicle Classification Structure that has been published in the latest Government Gazette is as follows:

CLASS	TYPE OF VEHICLE	DESCRIPTION
1	Light	Light vehicle are motor vehicles, other than heavy vehicles, with or without a trailer and including motorcycles, motor tricycles and motor cars.
2	Medium Heavy	Medium heavy are heavy vehicles with two (2) axles.
3	Large Heavy	Large heavy are heavy vehicles with three (3) or four (4) axles.
4	Extra Large Heavy	Extra-large heavy are heavy vehicles with five (5) or more axles.

Add the following subclauses:

#### **“PS6.1.1.3(a)**

*The Contractor is to note that the Employer is considering and may add an additional toll class for motorcycles to the existing vehicle classification structure during the Operation Service Period. The Contractor is to note that the current Toll System/s is already managing and processing Motorcycles at Toll Lane Level, where a Motorcycle Class is catered for and this Vehicle type / Class Identification shall be operationally executed as such operationally. The use of the Class 5 type of vehicle class shall not be visible to the motorist, who will experience the passage and financial transaction as being a standard Class 1 Light Vehicle transaction, until instructed to implement the “complete” Class 5 vehicle type functionality in a “motorist-visible” manner.*

#### **PS6.1.1.3(b)**

*All Transactions, within the toll system, are being processed and managed as Class 5 Motorcycles (including the AVC system). However, the financial and traffic reporting from the Toll System provides consolidated traffic and income data (combining motorcycles and the remaining Light Vehicles), as Class 1 Traffic, as per the current Government Gazette. Changes to the Government Gazette will be communicated to the Contractor, in time in order to implement the required configuration changes to ITIS data reporting and other performance and financial reporting elements. The Contractor shall be prepared to implement such configuration changes on short notice, as and when required.”*

#### **PS6.2.2.1**

Replace clause 6.2.2.1 with the following:

*“6.2.2.1 The Contractor shall supply, install and commission an appropriate digital Video Grabbing System (VGS) with a camera in each Toll Lane, and as specified in the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a). The system shall be compliant and operational no later than 3 (three) months after the Commencement Date. The Contractor shall Operate and Maintain the system for the Operation Service Period.*

6.2.2.2 The Contractor shall use the VGS to manage reportable incidents that occur at the Toll Plaza. The VGS shall provide the Employer and Employer Representative with an audit tool to verify operational activities of the Contractor.

6.2.2.3 For Toll Lanes that operate Manual Mode, the Contractor shall ensure that the VGS records on a continuous basis for those lanes.

6.2.2.4 The Contractor shall record digital images continuously on a storage device.

6.2.2.5 A back up of the triggered Incidents and linked images shall be performed on a weekly basis.

6.2.2.6 The Contractor shall ensure that the Employer and Employer Representative shall have full access to this data if so required.

6.2.2.7 The VGS and ANPR lane camera shall include the following functions:

- 1) Record video from selected cameras on NVR that are time synchronised with the MIS/BOS
- 2) Provide ANPR cameras licence data and text in real-time to the TCC
- 3) Provide incident images to the BOS requested by the BOS Incident Control System
- 4) Provide VGS status information to the BOS health monitoring system (BOS level incident generation)
- 5) Links the following to images, including Transaction Framing:
  - a) BOS transactions
  - b) BOS incidents
  - c) Vehicle number plate and ANPR data
  - d) Video motion, over the AVC area, that are not associated with BOS transactions in closed and open lanes
  - e) Queue analytics
- 6) BOS/VGS interface, including Transaction Framing: The interface shall include
  - a) BOS timeslice/hourly audit summaries which shall be used by VGS to manage the video import process e.g. trigger import when all data for a specific timeslice is available
  - b) BOS transactions and Incidents: Import all transactions and incidents. VGS events (passages) shall be created for each transaction. Additional VGS events shall be created for motion/s that do not match an existing BOS transaction. VGS shall use the AVC first axle and the ETC tag detected incident and/or light curtain (or other sensor input) as a reference point in the Transaction Framing process
  - c) Transaction audit trail data will be imported and displayed by the VGS as part of the VGS event
  - d) Updates to transaction data will be reflected by the VGS and highlighted to auditors
  - e) Vehicle number plate data captured per transaction by VGS
  - f) Perform ANPR on images during the video import and add ANPR data to VGS event
  - g) Time synchronization interface to ensure that the times on the VGS, including NVR's, are within 200 milliseconds of the BOS and TCC times
  - h) Feedback to BOS that includes:
    - i) VGS status for
      1. Server
      2. NVR
      3. Camera
      4. Importer

- ii) *Time sync interface*
  - iii) *VGS software versions and configuration data*
- 7) *Provide an audit interface that allows the auditor to:*
- a) *Run queries for a combination of the following:*
    - i) *Date and time ranges, including times relative to a specific reference point*
    - ii) *Selected lanes and or plazas*
    - iii) *Method and means of payment e.g. cash, credit card, violation or Tag*
    - iv) *Exceptions linked to BOS incidents or VGS exception generated from an analysis of the BOS data and NVR video. These exceptions include but are not limited to (Selection of all, only selected or NOT selected or No Exceptions):*
      - 1. *Class discrepancies, positive and negative*
      - 2. *Abnormal passage: Run through, roll-back, vehicle standing, reverse entry, reverse roll-back, wrong direction, excessive axles (>10)*
      - 3. *Number plate discrepancies: Account, registered TCH VLN and card mismatches*
      - 4. *Exempt/Credit granted voucher: Check the number plates, captured during incident control for a voucher, against the ANPR value*
      - 5. *Card/Tag abuse: Usage exceptions, pass back*
      - 6. *Collector exceptions: Cancel classification, MVC timeout, Simulate button pressed, cancelled classification, cancelled validation (system or collector)*
      - 7. *Equipment exceptions: Software restarts for lane or AVC, AVC sequence error, Panel door open (AVC or LC)*
      - 8. *Exceptions detected by VGS: Video without transaction, Transaction without video, Number plate mismatch, possible tailgater and pass back.*
    - v) *Tag, card and transaction numbers*
    - vi) *Road user group e.g., nominal, free passage or local users*
    - vii) *Vehicle number plate*
    - viii) *Vehicle class including MVC, AVC, SVC*
    - ix) *AVC status message-based query including type and number of axles*
    - x) *Card source e.g. SCR, Plaza or ETC*
    - xi) *Shifts and collectors*
    - xii) *Classifications, including axle types, and Class discrepancies (SVC, MVC and AVC)*
    - xiii) *Transaction source (VGS, lane or plaza)*
    - xiv) *Audit status*
    - xv) *Highlight and allow the auditor to view an audit trail of changes to a transaction e.g. inserted voucher number, class or MOP changes and supervisor comments*
    - xvi) *Exception cause allocation*
  - b) *Make and record audit inputs including:*
    - i) *Assigning a cause and corresponding sub cause to exceptions detected by the toll system or VGS including Operator, road user, VGS, Toll System or Operational.*
    - ii) *Input text comments to explain exception*
    - iii) *Option to flag exceptions,*
      - 1. *To be kept*
      - 2. *As severe*

3. Ignore i.e. false alarm
- iv) Create additional exceptions or events (additional vehicle not accurately detected by the BOS)
  - v) Assign video to BOS manually created transactions. Match manually created data with Video without Transaction event e.g. if the transaction is created after VGS imported the BOS data.
  - vi) Log auditor inputs and make the audit inputs visible per event for higher level auditors
  - vii) Select the appropriate audit action, and the completion status of actions, based on the findings of the exception audit
  - viii) Allow the batch auditing of certain types of exceptions. For some types of audits batch auditing shall not be allowed.
- c) Generate reports, including:
- i) Export CSV data and tabular formatted Excel spreadsheet for queried events and reports
  - ii) Detail exception report for queried events and exceptions
  - iii) Audit state report
  - iv) Traffic reports
  - v) Accuracy reports, including AVC class and count accuracy. Include functionality to handle and audit raised axles
  - vi) ANPR accuracy
  - vii) Identifier defaulters report
  - viii) Fraud investigation report
  - ix) Export a data pack based on query and including images.
  - x) NVR image export based on selected cameras and periods.
  - xi) BOS Incident and transaction-based query and audit tool. This include displaying incident related images and retrieved images to cover the gaps between retrieved transaction and incident images. This tool is used to view and audit activities and passages around certain reported incidents e.g. panel door open or AVC critical mode.
- d) View data and image status
  - e) Write data, images and video to media
  - f) VGS camera status viewer
  - g) Include maintenance functions i.e. Back-up and archive
  - h) VGS user manual
  - i) Queue audit functionality. This includes generating audit events for potential queues based on traffic flow rates (parameter driven)”

## **PS7 OPERATIONS PERIOD – FINANCIAL MANAGEMENT**

Add the following subclauses:

### **“PS7.1.5.2 User Account Charges**

User Account Charges are as follows:

- Contractor Magnetic Card issue and replacement R 60,00
- Provision of one detailed transaction listing per account per month via e-mail Free of charge
- Provision of detailed transaction listing hardcopy (per month) R 10,00
- Posting of statements and Tax Invoices via e-mail (per month) (on request Free of charge only)



- *Posting of statements and TAX invoices via surface/air mail* *R 20,00*
- *Provision of a copy TAX invoice* *R 15,00*

*All charges include VAT.”*

Add the following subclause:

**“PS7.1.5.3**

*The above User Account Charges might be adjusted by the Employer during the Operation Service Period.”*

**PS7.1.5.4**

All the remaining Local Employer User Accounts as well as Frequent User Accounts, employing ISO Mag-stripes as identifiers are to be migrated to the Employer Central User Accounts via the TCH, employing the SANRAL tags as vehicle identifiers. The Contractor is to finalise the migration of all Local User accounts and Frequent User Accounts within six (6) months from the Commencement Date of the Operations Service Period. The Contractor is to liaise with the local account holders and frequent user account holders individually to facilitate timeous migration to Employer Central Account (TCH). Any Pre-Paid User Account balance is to be refunded to the Account holder but preferably transferred to the User TCH Account.

The Employer tag and account management shall be managed in accordance with the TCH and Customer Service Centre policies and procedures, as amended during the Operation Service Period.

All charges include VAT.

**PS7.1.7 Exempt User Management**

The Contractor shall accept exemptions granted to the following Exempt Users:

- South African National Defence Force (SANDF).
- South African Police Services (SAPS).
- Ekurhuleni Metro Police (Only applicable to Gosforth and Dalpark Plaza)

Exempt transactions shall be identified by either official and valid paper warrants or by means of the Employer’s pre-configured TCH-ETC-Tags. These Exempt Tags are issued by the Employer’s TCH and not through the Employer’s Customer Service Centre/s. It shall remain the Contractor’s obligation to verify the validity of all Exempt transactions that amongst others, the Vehicle VLN and Class correlate with the registered Employer’s TCH details or the details provided on the Warrants. Any discrepancies are to be reported to the Authorities and in the event of an Employer’s TCH Tag originated transaction, to be formally reported to the TCH.

Historic monthly data for all the Exempt Users for the existing Toll Plazas are contained in Part C20 of Volume 4.

**PS7.1.11 Discount**

The Discount types that have been published in the latest Government Gazette for the existing Toll Plazas on the N17 Toll Road are:

- Frequent User discount at Dalpark and Gosforth Plaza
- Local Commuter and Frequent User and Local Public Transport Operator discount at Ermelo, Trichardtsfontein and Leandra Toll Plazas.

**PS7.1.11.4 Local User Discounts**

The current Local User tariffs are applicable to all classes to the registered bona fide residents, employers or employees located within an approved local user area for the Ermelo, Trichardtsfontein and Leandra Toll Plaza(s) and applicable to Toll Classes 1, 2, 3 and 4.

The Local Users may deposit money into a pre-paid account based on the user expected usage or register a valid credit card (Master and Visa) or a valid Local Commuter Identify Card or a tag.

The current Local User tariff are as follows:

<b>TOLL PLAZAS</b>	<b>APPROVED LOCAL USER AREA</b>	<b>CLASS 1</b>	<b>CLASS 2</b>	<b>CLASS 3</b>	<b>CLASS 4</b>
Leandra Mainline	Leandra	R27.80	R70.00	R105.00	R139.00
Leandra Ramp	Leandra	R16.70	R42.00	R63.00	R84.00
Trichardtsfontein Mainline	Trichardtsfontein	R11.60	R29.00	R44.00	R58.00
Ermelo Mainline	Ermelo	R20.70	R54.00	R78.00	R104.00

The details of Local User tariff are included in a typical application form included in Part C15 of Volume 4.

The historic monthly data for the Local Users discounts is included in Part C20 of Volume 4.

#### **PS7.1.11.5 Local Public Transport Operator Discounts**

Currently there are no Local Public Transport Operator tariffs at any of the Toll Plazas on the N17 Toll Road.

#### **PS7.1.11.6 Frequent User Discounts**

The Frequent User Discounts are currently available at the N17 Toll Plazas and applicable to Toll Class 1 motor vehicles only.

The Frequent User may deposit money into a pre-paid account based on the user expected usage or register a valid credit card (Master and Visa) (until such time as migration has been concluded) or a valid Fleet Management card as a Frequent User Card or a tag.

The details of Frequent User Discount scheme are included in a typical application form included in Part C15 of Volume 4.

The discount will be applied, according to the total number of passages completed over a period of one (1) calendar month.

The Frequent User Discounts currently applicable at the Gosforth and Dalpark Toll Plazas on the N17 Toll Road are as follows:

- a) From 0 to 34 trips – full tariff
- b) From 35 to 69 trips per single card/ Tag/vehicle/toll plaza – 20% discount on the total number of trips
- c) From 70 or more trips per single card/Tag/vehicle/toll plaza – 40% discount on the total number of trips

The Frequent User Discounts currently applicable at the Ermelo, Trichardtsfontein and Leandra Toll Plazas on the N17 Toll Road are as follows:

- a) From 0 to 15 trips – full tariff
- b) From 16 to 20 trips per single card/Tag/vehicle/toll plaza – 40% discount on the total number of trips
- c) From 21 to 30 trips per single card/Tag/vehicle/toll plaza – 55% discount on the total number of trips
- d) From 31 and more trips per single card/Tag/vehicle/toll plaza – 70% discount on the total number of trips

The historic monthly data for the Frequent User discount is contained in Part C20 of Volume 4.

The Contractor is required to take over all existing pre-paid accounts and associated remaining local account balances that have not been migrated to the Employer's TCH tag account. The Contractor at the Commencement Date of the Operation Service Period will be paid the sum of all existing local pre-paid Frequent User Account balances from the Employer. Likewise, at the end of the Contract, the Contractor will be required to pay over to the Employer the sum of all existing local Frequent User Account balances. The Contractor is to note that the balances of all the local pre-paid Frequent User Account balances at end of each month will be adjusted monthly in the payment model.

## **PS7.1.14 Links to the Banks**

### **PS7.1.14.1(b)**

A copy of the existing Merchant Agreements for the approved banks are included in Part C12 of Volume 4.

The Contractor is to note that the toll system is generating and submitting “rolled-down” (individual) transactions to the various banks each working day and payment is made to the Employer joint account three (3) days later.

The Employer joint accounts for all the existing Toll Plazas are held with Nedbank and the Contractor will be responsible for all related bank charges, where provision has not been made for in the Schedule of Payments/Cost Matrix.”

Add the following subclause:

#### **“PS7.1.14.1(e)**

*The Contractor is to note that the Employer has appointed Nedbank as the banking Service Provider. The migration to Nedbank should be finalised prior to the Commencement of the Operation Service Period. These services will be migrated from FNB and BankServe to the Nedbank platform. Banking service available from Nedbank should be similar to what was in place before the migration. The Employer may change the banking Service Provider during the Operation Service Period. The Contractor maybe required to migrate all banking related services from one bank to the next. This and/or future migration(s) shall include all ISO Master/Visa Credit Card handling as well as the deployment of handheld mobile POS units enabling online card transactions, in case of abnormal circumstances where a motorist requires support with an alternative method of payment.”*

## **PS7.1.15 Payments Received and Transfer to the Banks**

### **PS7.1.15.8**

Details of the safe facilities at the N17 Toll Plazas are as follows:

- Ermelo Mainline Toll Plaza Control Building
  - One safe (Chubb Safe, Platinum Range, SABS Category 2, ADM locking, size 2 safe)
  - One drop safe ( Chubb Safe, Platinum Range, SABS Category 4, “F” Trap Rear 450mm wall)
- Trichardtsfontein Mainline Toll Plaza Control Building
  - One safe (Chubb Safe, Platinum Range, SABS Category 2, ADM locking, size 2 safe)
  - One drop safe ( Chubb Safe, Platinum Range, SABS Category 4, “F” Trap Rear 450mm wall)
- Leandra Mainline Toll Plaza Control Building
  - One safe (Chubb Safe, Platinum Range, SABS Category 2, ADM locking, size 2 safe)
  - One drop safe (Chubb Safe, Platinum Range, SABS Category 4, “F” Trap Rear 450mm wall)
- Dalpark Mainline Toll Plaza Control Building
  - A fixed, built-in vault (Giant) with chute type depositing facility where money will be stored until banked
  - A fixed, built-in transfer hatch (Austen) to allow transfer to the parked cash pick-up vehicle
  - There is also a day safe (Austen) (not fixed) in the cash-up room
- Denne Ramp Toll Plaza Control Building:
  - A day safe (Austen Safex) (not fixed)
- Gosforth Mainline Toll Plaza Control Building
  - A fixed, built-in vault (Giant) with chute type depositing facility where money will be stored until banked
  - A fixed, built-in transfer hatch (Austen) to allow transfer to the parked cash pick-up vehicle
  - There is also a day safe (Austen) (not fixed) in the cash-up room

The Contractor is expected to take note, during pre-arranged Toll Plazas inspections, of the existing safe facilities provided at the existing Toll Plazas during the tender period.

**PS7.1.15.9**

Delete this Clause and replace with the following:

*“The Contractor shall remain fully liable in respect of all monies that may have been collected until such time as the said monies have been collected from the Toll Plaza by the Bank appointed Cash-in Transit service provider. The Contractor shall make no withdrawals from the Joint Accounts.”*

**PS7.1.15.11**

Delete this Clause and replace with the following:

*“The Cash-in Transit service provider shall be responsible for the safe transfer of the cash to the bank.”*

**PS7.2.2 No-Payment Policy**

Historic monthly No-Payment and run-through violation data for the existing Toll Plazas are contained in Part C20 of Volume 4.

**PS10 OPERATIONS PERIOD – TRAFFIC MANAGEMENT**

**PS10.1 Provision of Available Traffic Data**

**PS10.1.1.1 (a) Traffic Data for Existing Toll Roads**

The following information has been included in Part C16 and C17 of Volume 4:

- MIS hourly traffic per Toll Class per Virtual Plaza.
- Historic daily AVC, MIS, TEL1 and TEL2 traffic per toll class per virtual plaza.
- Daily traffic for the alternative route, recorded by TEL stations.
- Hourly traffic for the alternative route, recorded by the TEL stations.
- Average monthly daily traffic data per toll class processed by each Virtual Toll Plaza and alternative route.

**PS10.2.1.4 Traffic Sample Size Calculation**

The Contractor to note that the Lockdown Regulations during the Covid-19 pandemic had a dramatic effect on traffic volumes over the last twenty-four (24) months. Due to the uncertain future that the pandemic will have on traffic volumes, the sample size remains the same as pre-lockdown, until there is a need for the Employer Representative to recalculate the sample size.

**PS10.3 Queue Length Specification**

**PS10.3.4.1**

Delete this clause and replace with the following:

*“The Contractor shall contact the Employer as stated in subclause 10.3.4.3 before implementing Queue Line 2 “open boom” procedure.”*

**PS10.3.4.2**

Delete the sentence *“... a line defined ..., as described above,”* and replace with *“a line 500m or any other distance designated by the Employer, from the toll plaza lane bullnoses,”*

**PS10.3.4.3(e)(ii)**

All references made to “DVSS” must be deleted and replaced with “VGS”.

**PS10.3.4.3(f)**

All references made to “DVSS” must be deleted and replaced with “VGS”.

**PS10.3.5.1 and PS19.3.5.2**

Delete these subclauses and replace with the following:

*“The location mutual Queue Line 2 shall be a line 500m or any other distance designated by the Employer, from the toll plaza lane bullnoses.”*

**PS10.4 Digital Queue Length Monitoring System (QLS)**

**PS10.4.1.1**

All references made to “DVSS” must be deleted and replaced with “QLS”.

**PS10.4.1.2**

All references made to “DVSS” must be deleted and replaced with “QLS”.

**PS10.4.1.3**

All references made to “DVSS” must be deleted and replaced with “QLS”.

**PS10.4.1.5**

Replace this clause with:

*“10.4.1.5 The Contractor shall keep a record of all penalties related to the queue length exceeding Virtual Queue Line 1 and the resulting penalties will be levied monthly.”*

**PS10.4.1.6**

All references made to “DVSS” must be deleted and replaced with “QLS”.

**PS12 OPERATIONS PERIOD – TAG MANAGEMENT**

**PS12.2.2 Minimum Tag stock levels**

The Contractor is to take over the current stock of tags at the Toll Plazas and must ensure that the following minimum tag levels, including brackets for light and heavy vehicles are maintained for the duration of the Operation Service Period:

<b>Plaza</b>	<b>Minimum Tag Stock</b>	<b>Re-Order Level</b>
Ermelo	100	150
Trichardtsfontein	100	150
Leandra	100	150
Dalpark	100	150
Gosforth	100	150

The minimum tag and peripheral stock levels may be adjusted by the Employer during the Operation Service Period.

**PS13 EQUIPMENT FUNCTIONALITY, INTERFACES AND AGREEMENTS**

**PS13.1.1.1**

Replace this clause with:

*“The Contractor shall assure full technical responsibility for the design, supply, installation, integration, testing, operation, maintenance and support of the tolling system as required in The Standard Specification for Operations and Maintenance of CTROM projects: General (Volume 2 Book 2a), The Standard Specifications for Operation and Maintenance of CTROM projects: Toll System (Volume 2 Book 4a) and Standard*

*Specifications for Operations and Maintenance of CTROM projects: Electronic Toll Collection (Volume 2 Book 5). The Contractor to ensure that the tolling system and all peripheral services functions as required at all times.*

*The Contractor to ensure that the performance requirements and Operational Business Rules are adhered to as described in the Standard Specifications for Operations and Maintenance of CTROM Projects (Volume 2 Book 6a and 8a) respectively.”*

#### **PS13.1.1.5**

Replace this clause with:

*“The Contractor shall accommodate and integrate operations activities with the detail program of all requisite Toll System upgrade/replacement activities, guided by the time frames indicated for the acceptance progress in the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a).”*

#### **PS13.1.1.6**

Replace this clause with:

*“For the initial Toll System upgrade/replacement, an implementation programme shall be agreed with the Nominated Subcontractor and submitted within 45 (forty-five) calendar days after the Contract Commencement Date or as stated in the Project Document: Volume 3 for approval by the Employers Representative. The approved program will form the basis against which progress on the Toll System acceptance process shall be measured.”*

#### **PS13.2.1.2**

Replace this clause with:

*“The Contractor will establish and maintain interfaces with inter alia:*

- (a) The TCH;*
- (b) The VPC (if opted-in);*
- (c) The Employer’s acquiring bank for, inter alia, the processing of credit card transactions (e.g. in manual lanes at Conventional, Hybrid and Conventional/ORT Toll Plazas);*
- (d) ITIS and Traffic Analysis System (ITAS) interface;*
- (e) VGS remote access interface.”*

#### **PS13.2.2.1 Contractor (TA) – TCH Interface**

Add the following:

“

- (f) The interfaces between the Toll Authority (N17 Toll Road) and the TCH have been successfully implemented to serve the base requirements for processing tag transactions on all the existing Toll Plazas from the Commencement Date of the Operation Service Period.*
- (g) The N17 Payment Gateway, the module that handles the interface between the TCH and the Toll System, is currently hosted off-site by a service provider (Vodacom business).*
- (h) The Contractor shall implement the TCH payment gateway on the server at the most suitable Control Centre on the N17 Toll Road, as approved by the ER. The Contractor shall ensure the necessary interfaces, links, firewalls, configurations, and hardware to accommodate the Payment gateway. The Contractor shall ensure that the primary and secondary links capacity between the N17 Toll Road and the TCH can accommodate the direct link between the Payment Gateway and the TCH.*
- (i) The Contractor can take over the existing communications link/s, or provide a new WAN link/s to service the TA-TCH communications services, including a fallback solution. The typical TA-TCH*

communication requires the utilization of a secure data communications service, utilizing a local (FortiGate) firewall between the Toll System (BOS) and the TCH. (Providing a single data channel for the entire route, serving the primary communications channel and another for the fallback communications channel.)

- (j) *The data interface between the Customer Service Centre (CSC) installed in the Administration Office at each mainline Toll Plaza on the N17 Toll Road and the TCH has been successfully implemented and the Contractor is to operate these CSC stations from Commencement Date of the Operation Service Period. Although this communication service is managed by the TCH, the Contractor is responsible for the monitoring and notification process of faults or defects experienced to the TCH, whilst the Contractor is also to provide first line technical support as and when required.*

Add the following:

**“PS13.2.2.2 Contractor – VPC Interface (if opted-in):**

*The current system and operations are not opted-in for VPC services.”*

**PS13.2.2.3 Bank Office System – Acquiring Bank Interface**

Add the following clause:

*“PCI DSS compliance is required by the Contract to govern participation with the major payment card brands. Refer to Volume 2B4, CI 5.4.5.3. The applicable certification shall be obtained in the name of the Employer when required.”*

Add the following clause:

**“PS13.2.2.5 VGS remote access interface or interface to the SANRAL MIS**

*The Contractor shall provide an interface to view VGS and QLS images/video from external locations through secure connections. Once the Employer’s MIS and the applicable interface have been implemented, the remote access might be provided through the MIS and/or the national Employer’s fibre optic WAN linking plazas to the Employers network.”*

**PS13.2.3.1 Contractor (TA) – TCH**

Add the following:

*“The Contractor shall comply to the TA/TCH a Service Level Agreement (SLA) with the Operator of the TCH of which a copy of the latest draft SLA is included in Part E6 of Volume 4.*

*The Contractor is to note, that the Employer is currently in the procurement process to appoint a new Operator for the TCH and the Contractor may need to sign a new SLA with the new appointed TCH Operator, if required.”*

**PS13.2.3 Agreements**

Add the following:

**“PS13.2.3.3 Merchant Agreements with Banks**

*A description of the current Toll System, the ISO Bank Card System and associated procedures are provided in Part C11 and C10 of Volume 4, respectively.*

*The Contractor shall accept Master and Visa ISO cards and these transactions must be processed by the Employer’s Acquiring Bank, or any other Bank, that may be appointed by the Employer during the Operation Service Period. The previously appointed banker was First National Bank (FNB) and such services are currently being migrated to the newly appointed Acquiring Bank, Nedbank. The Contractor may be required to redirect Card transactions or Bank Files to another commercial bank, as directed by the Employer from time to time. The Contractor, as an Agent for the Employer, shall at all times, honour the obligations of the Merchant Agreement to the Commercial Bank and clearing house. This shall include the verification of valid Cards against the Negative file or “Hotlist” and BIN list, applicable at the time.*

*The Contractor shall accept all the Fleet Cards issued by the Fleet Card Association and the transactions must be processed by the relevant approved Fleet bank, such as:*

- *Stannic.*
- *First Auto.*
- *Bankfin.*
- *Nedfleet.*
- *Zimele.*
- *Any other/new fleet card introduced by the members of the Fleet Card Association.*

*Copies of the existing Merchant Agreements signed between the Employer and the Banks / Fleet Banks are included in Part C12 of Volume 4.*

*The Contractor is to note that the Employer is currently reviewing the existing Merchant Agreements with Banks and may change during the Operation Service Period.*

*In the event of there being differences between the Merchant Agreement and the Contract requirements, the Merchant Agreement shall take precedence.*

*The Contractor shall not be required to accept or process Diners Club Charge Cards or American Express Charge Cards.*

*The Contractor should note that should the motorist encounter difficulty to conclude a toll transaction by means of the standard payment options, such motorist shall be allowed to pay for toll tariffs by means of any ISO Credit or Debit Card accepted by the mobile speed point at each Mainline Toll Plaza on N17 Toll Road. The existing mobile speed point equipment at each Mainline Toll Plaza is provided by the current Employer's Banker."*

Add the following Clause:

***"PS13.2.3.5 EMV Integrated Circuit Card Requirements***

*"It is envisaged that chip card technology may be implemented during the Operations Service Period by the banks. To allow for payment system interoperability, all payment systems will have to comply with the "EMV Integrated Circuit Card" specifications. This requirement shall be dealt with as a new requirement in terms of Volume 2 Book 4a. The new requirement process shall be used to ensure that all systems if supplied and installed, comply with EMV specifications for payment systems. Relevant details on specifications and implementation dates can be obtained from the following website: [www.emvco.com](http://www.emvco.com)*

*The Contractor shall be responsible for the cost of software and hardware modification to comply with the relevant EMVCO requirements. The Contractor shall install two EMV compatible contactless card readers per lane fitted outside each booth, just before the payment window. The bottom reader shall be at a level accessible from the driver seat of a light vehicle. The top reader shall be installed at a height accessible from the driver seat of a class 4 heavy vehicle. The two readers shall be positioned to optimise the driver access for most types of vehicles. The card reader units shall be designed for outside use and have at least IP 65 rating.*

*The reader shall be equipped with clear status LEDs to indicate, power on (white), success full read (orange), successful payment/Boom open (green) and unsuccessful payment/card rejection (red). The card readers shall process the payment request without the road user having to enter a pin.*

*Item B-3014 is allowed in the Nominated Subcontract Schedule of Payments/Cost Matrix for this purpose. If triggered the Contractor shall implement the EMV requirements to ensure compliance to the relevant EMV specifications."*

**PS14 ASSET MANAGEMENT**

**PS14.3.2 Damage to Employer's Facilities (Excluding Toll and Communication Systems)**



The first sentence of this Sub-clause to be modified to read as follows:

*“PS14.3.2.1 .... recorded by the Contractor in terms of Clause 14.3.5, all depending...”*

#### **PS14.3.2.3 Urgent Repair**

Add the following subclauses:

“

- (c) *The Contractor shall preferably obtain quotations for the Works from specialists who are SMME), registered with South African Revenue Services (SARS) as VAT Vendors and a Letter of Good Standing to be provided.*
- (d) *The Contractor shall proceed with urgent repairs and notify the Employer and provide motivation in the event that the Contractor cannot meet the requirements under (c).”*

The values referred to in Clauses 14.3.2.3(a) and (b) shall be R250,000 (two hundred and fifty thousand Rand) for each Clause.

#### **PS14.3.2.4 Repair other than Urgent Repair**

Add the following subclauses:

“

- (c) *The Contractor shall obtain quotations for the work from specialists who are SMME (BEW), registered with South African Revenue Services (SARS) as VAT Vendors and a Letter of Good Standing to be provided.*
- (d) *The Contractor shall notify the Employer and provide motivation in the event that the Contractor cannot meet the requirements under (c).”*

The values referred to in Clauses 14.3.2.4(a) and (b) shall be R250 000 (Two hundred and fifty thousand Rand) for each Clause.

#### **PS14.3.5 Recording and Reports of Damage**

The third sentence of subclause 14.3.5.3 to be modified to read as follows:

*“PS14.3.5.3.....refuses to supply any of the information specified in Clause 14.3.5.2 above, the Contractor.....”*

#### **PS14.4.1 General Maintenance Requirements**

The typical checklist and the scoring system to evaluate the Contractors obligations in terms of General Maintenance are contained in Part C23 of Volume 4.

#### **PS14.4.4.8 Spares and replacement parts**

Add the following sub-clauses:

- “(b) The Contractor shall supply a complete batch of spares as part of the system implementation, when the system is rolled out to all lanes, which shall be maintained for the duration of the Operation Service period. The initial batch of spares shall form part of the hardware verification.*

*A full batch of spares shall form part of the handover requirements at the end of the Contract.*

*The Contractor shall maintain the following minimum, or higher, spares levels per workshop:*

- 1) *Complete set of lane peripherals: One complete spare unit for each type of peripheral, including but not limited to a Boom, OHLS, ETC beacon, TCT, VDU, receipt printer, set of light curtains, set of AVC sensors, siren, booth camera, side view camera, ANPR camera etc.*

- 2) *Components: One complete replacement unit for every 10 units or part thereof e.g., four hard drives for a 12-lane plaza. This includes mother boards, CPU's, serial cards, RAM units, intercom slaves, sirens, traffic light heads, proximity detectors, door switches etc.*
  - 3) *Boom arms: Two spare boom arms for every 10 lanes or part thereof.*
  - 4) *Consumables and additional spares required to ensure a high service level*
- (c) *The Contractor shall supply, install and maintain a Lane Test or standby rig in the workshop. The Test or standby rig shall be used for testing components and scenarios by the maintenance technician. The Test or standby rig shall;*
- 1) *Be installed in the maintenance workshop and shall consist of a full set of lane equipment, loaded with the correct approved and certified software and settings;*
  - 2) *Where possible and practical, the various components of the Test or standby rig shall be mounted against the workshop wall;*
  - 3) *Include all the components required to simulate one of the existing Mixed ETC lanes, including:*
    - a) *Lane Controller*
      - i. *Complete lane controller, back plate and components, excluding the lane controller enclosure*
      - ii. *Door switch*
      - iii. *TCT and swipe card reader*
      - iv. *Video display unit*
      - v. *Receipt printer*
      - vi. *Barcode scanner*
      - vii. *Battery low detector*
      - viii. *Network switch*
      - ix. *Exit boom*
      - x. *ETC Beacon*
      - xi. *Traffic light*
      - xii. *UFD*
      - xiii. *ANPR camera and ANPR presence detector*
      - xiv. *Test Tag and cards*
      - xv. *AVC sensor simulator*
    - b) *Complete AVC, back plate and components, excluding the AVC box and sensors*
    - c) *AVC/TCC UPS, with limited battery back-up*
    - d) *Evaluation, test and verification utilities*
  - 4) *May exclude;*
    - a) *VGS cameras*
    - b) *AVC sensors*
    - c) *Boom arm*
  - 5) *The Test or standby rig shall be maintained by the Contractor and shall not be used as spares to replace faulty equipment.*
- (d) *The available Spares and Replacement Parts to support the current toll system until the replacement is completed are included in Volume 4 Part C04 and should be topped-up to the minimum required levels indicated herein."*

#### **PS14.4.4.14 Tolling System availability**

Add the following sub-clause:

#### PS14.4.4.15 Support and maintenance levels

- “(a) **1st line Support and maintenance:** Means the logging and notification of a maintenance incident and the rectification of issues by low level interventions, that exclude modification of the configuration or changes to the system. 1<sup>st</sup> Line support will identify issues and escalate such issues to higher levels of support staff.
- i) **Hardware 1<sup>st</sup> Line support and maintenance** (“1<sup>st</sup> Line HW support and maintenance”) requires site presence and includes, inter alia:
- 1) Maintenance:
    - a) Daily inspection of the system,
    - b) Ensuring that all lanes are operating in normal mode,
    - c) Ensuring that all AVC are operating in normal mode,
    - d) Ensure that complete AVC data is submitted via the DCS to ITIS,
    - e) Identifying components and sensors that need to be replaced as part of routine maintenance,
    - f) Cleaning and realigning and resetting of components/devices, and
    - g) Maintenance of the workshop, spares, standby rigs, and tools,
    - h) Order spares to ensure adequate spares are always available.
  - 2) Support:
    - a) 1<sup>st</sup> response to reported issues or issues detected during maintenance inspection.
    - b) Fault finding and analysis,
    - c) Resubmit ITIS, if data problems exists,
    - d) Restarting/rebooting systems, and
    - e) Replacing components with spare units.
- ii) **Software 1<sup>st</sup> Line support and maintenance** (“1<sup>st</sup> Line SW support and maintenance”) requires site or remote presence and includes, inter alia:;
- 1) Maintenance:
    - a) Daily inspection and monitoring of the system processes to ensure that all aspects are running at optimal levels.
    - b) Ensure that all data is received from all lane,
    - c) Monitoring problem and resolve problem data.
    - d) Ensure that all ETC transactions is transmitted to TCH,
    - e) Ensure that all Toll system/AVC/lane configurations, parameters, tariffs, validation lists, balances and hotlists are up to date. Report issues to 2<sup>nd</sup> Line software support.
  - 2) Support:
    - a) Fault finding and analysis,
    - b) Restarting/rebooting systems or processes.
- (b) **2nd line Support and maintenance:** Means the rectification of issues referred to the 2<sup>nd</sup> line support by 1<sup>st</sup> line support, reported by the Contractor or detected by 2<sup>nd</sup> line maintenance. 2<sup>nd</sup> Line support include configuration changes to the system. Only items that require system change will be escalated by the 2<sup>nd</sup> line support to 3<sup>rd</sup> Line support, all other issues will be addressed by second line support.
- i) **Hardware 2<sup>nd</sup> Line support and maintenance** (“2<sup>nd</sup> Line HW support and maintenance”) relies on HO staff and includes, inter alia:;
- 1) Maintenance:
    - a) Route wide site inspections to evaluate equipment statuses and calibration. This will include inter alia.
    - b) reading zones evaluation, processing speed evaluation, loop megger tests, LED intensities, camera quality and alignment, sensor statuses, workstation and server performance assessment,
    - c) Evaluate, and replace if necessary, underperforming components and sensors identified by 2<sup>nd</sup> Line Software maintenance or accuracy reports.

- d) *Routine replacement of components and sensors as part of routine maintenance,*
  - e) *Workshop and site technician assessment, including stock level verification,*
  - f) *Assist with the deployment of system updates.*
  - g) *Generate the required KPI reports*
- 2) *Support:*
- a) *Address issues referred to it by 1st Line support.*
  - b) *Correct issues that result in data transmission errors between lane (AVC and TCC) and plaza (BOS, DCS, ICS, VGS) and plaza (BOS and DCS) and external entities (TCH, Banks, SANRAL MIS and ITIS)*
  - c) *Address communication and network issues.*
- ii) *Software 2nd Line support and maintenance* (*"2nd Line SW support and maintenance"*) *is normally performed remotely and includes, inter alia.*
- 1) *Maintenance:*
- a) *Perform statistical analysis of Toll System data to detect underperforming components or sensors. This shall include inter alia,*
    - i) *AVC data to identify sensor issues.*
    - ii) *Card processing data to identify faulty SCR heads.*
    - iii) *ETC processing speed in mixed ETC lane to detect hardware or alignment issues,*
    - iv) *ETC failure rates in Dedicated ETC lane to detect hardware or alignment issues,*
    - v) *AVC and TCC resets and incidents. to determine possible*
  - b) *Log the findings of the statistical assessment via the support request system (Help Desk) to ensure that it is addressed by 1st or 2nd Line support and maintenance.*
  - c) *Deploy Operating System, Application Software and Antivirus/Security updates.*
  - d) *Ensure that all versions and configurations are correct. Log deviations via the support request system (Help Desk) to ensure that it is addressed 2nd Line SW support.*
- 2) *Support:*
- a) *Fault finding and analysis for items referred to it by 1st Line software support,*
  - b) *Restarting/rebooting systems or processes.*
  - c) *Generate required KPI reports.*
  - d) *Evaluate TCH rejections and raise support request TCH to address unfair rejections.*
  - e) *Evaluate Bank charge backs and*
  - f) *Correct all incorrect versions and configurations*
- (c) *3rd line Support and maintenance, means the specialised support or maintenance required to adjust, rectify, configure, correct, or improve the system, when 2nd line support cannot provide the required support. 3rd Line SW support relates to system software changes and the deployment of such changes.*
- i) *Hardware 3rd Line support and maintenance* (*"3rd Line HW support and maintenance"*) *relies on external specialists and includes, inter alia:*
- 1) *Maintenance:*
- a) *Routine maintenance provided by the specialist supplier in terms of the hardware support agreement,*
- 2) *Support:*

- a) *Specialist support provided by the specialist supplier for issues that cannot be resolved without specialist assistance.*
- ii) *Software 3rd Line support and maintenance (“3rd Line SW support and maintenance”) is normally performed remotely and includes, inter alia.*
  - 1) *Maintenance:*
    - b) *System updates required by obsolescence.*
  - 2) *Support:*
    - a) *Development, testing (DTEC and SAT), deployment and commissioning (SAT) of system upgrades required to rectify defects,*
    - b) *Development, testing (DTEC and SAT), deployment and commissioning (SAT) of system upgrades related to new requirements and/or system enhancements.*
    - c) *Comply with the Escrow requirements in terms of Escrow agreement, including the update of escrow deposits as specified.*
    - d) *Comply with the Disaster Recovery Plan requirements, including depositing the DRP with the Escrow Agent in terms of the Escrow agreement. “*

**PS15 GENERAL**

**PS15.1.2 Electricity**

**PS15.1.2.5** Included in Part C25 of Volume 4, is information indicating the historic costs from the various Service/Utility Providers and their contact details (where available).

**PS15.1.2.6** The Supply of electricity to the existing Toll Plazas on the N17 Toll Road are provided on a “time of use” tariff by the following providers:

<b>TOLL PLAZAS</b>	<b>SERVICE PROVIDER</b>	<b>EMERGENCY POWER GENERATOR</b>
Ermelo Mainline Toll Plaza	Eskom	250kVA
Trichardtsfontein Mainline Toll Plaza	Eskom	300kVA
Leandra Mainline Toll Plaza	Eskom	250kVA
Leandra Ramp Toll Plaza	Eskom	50kVA
Dalpark Mainline Toll Plaza	Ekurhuleni Metropolitan Municipality	200kVA
Denne Road Ramp Toll Plaza	Ekurhuleni Metropolitan Municipality	80kVA
Gosforth Mainline Toll Plaza	Ekurhuleni Metropolitan Municipality	165kVA
Gosforth West Ramp Toll Plaza	Ekurhuleni Metropolitan Municipality	130kVA

**PS15.1.2.7** The existing Toll Plazas have a standby generator and the details of which, are summarised in the following table:

<b>TOLL PLAZAS</b>	<b>GENERATOR TYPE</b>	<b>ALTERNATOR</b>	<b>HOURLY METER READINGS</b>
Ermelo Mainline Toll Plaza	SDMO - John Deere 6068HF120 with DSE 4520 controller (4520 RT) (No remote communication). Also, SmartGen controller at change over.	Leroy-Somer LSA 44.2M95 J 6/4	641h 33m on 1 Nov 2022
Trichardtsfontein Mainline Toll Plaza	SDMO - John Deere with DSE 7310 MKII. Also, SmartGen controller at change over. (V350)	Leroy-Somer LSA 46.2VL12 J 6/4	801h 34m with on 1 Nov 2022
Leandra Mainline Toll Plaza	SDMO - John Deere with MICS Nexys controller. Also,	Leroy-Somer	1762h 33m on 1 Nov 2022

TOLL PLAZAS	GENERATOR TYPE	ALTERNATOR	HOUR METER READINGS
	SmartGen controller at change over. (J165)		
Leandra Ramp Toll Plaza	SDMO - John Deere with MICS Nexys controller. Also, SmartGen controller at change over. (J110)	Leroy-Somer	2092h 33m on 1 Nov 2022
Dalpark Mainline Toll Plaza	ADE/Mercedes Benz. with DSE 7220 controller	Markon	1067h 30m on DSE on 1 Nov 2022
Denne Road Ramp Toll Plaza	ADE 354 T with DSE 7220 controller.	Alstom - Unelec	3665h 29m on DSE on 1 Nov 2022.
Gosforth Mainline Toll Plaza	Volvo Penta TD 731 GE with DSE 7320 MKII controller.	MarelliMotori MXB-F 225 LA4	4463h 43m on 1 Nov 2022.
Gosforth West Ramp Toll Plaza	Perkins 1869/1800 With SmartGen controller.	No label	688h 24m on 1 Nov 2022.

**PS15.1.2.8 The existing Toll Plazas have Uninterruptable Power Supply (UPS) units and the details of which are summarised in the following table:**

TOLL PLAZAS	UNINTERRUPTABLE POWER SUPPLY (UPS)	STATUS On 22 & 23 Feb 2022
Ermelo Mainline Toll Plaza	2 x 40KVA/36kW Eaton 9355-40 (Part No. 1025804)	Satisfactory (load 29%)
Trichardtsfontein Mainline Toll Plaza	2 x 80KVA/72kW Eaton 9390-90 (Part No. 1023297). One UPS not working.	Satisfactory & Poor
Leandra Mainline Toll Plaza	2 x 40KVA/36kW Eaton 9355-40 (Part No. 1025804)	Satisfactory (Load 17% & 20%)
Leandra Ramp Toll Plaza	4 x 10KVA/9.0kW Eaton 9355-40 (Part No. 1023451). One UPS not working.	Satisfactory & Poor (Load 13% & 12%)
Dalpark Mainline Toll Plaza	1 x 30KVA/27kW Eaton 9355-30 (Part No. 1025090)	Satisfactory (load 40%)
Denne Road Ramp Toll Plaza	2 x 15KVA/13.5kW AEC ST51150L	Good (load 4.6% & 5.3%)
Gosforth Mainline Toll Plaza	2 x 40KVA/32kW AEC ST5100P-40kVA	Satisfactory (Load 17% & 10%)
Gosforth West Ramp Toll Plaza	2 x 20KVA/18kW AEC ST5100-20kVA	Good (load 7.6% & 6.6%)

Add a new Clause:

***“PS15.1.2.5 Interruption of the supply of electricity due to load shedding.***

*Due to the current power supply crisis in South Africa, load shedding could become a more frequent occurrence. The Contractor is to include for all additional costs incurred due to the possible increase of load shedding.”*

**PS15.1.2.10 Supply of fuel**

Included in Part C25 of Volume 4 is information indicating the Services/Utility Providers and the amounts spent.

The diesel tank capacity at the existing Toll Plazas is the following:

TOLL PLAZAS	DIESEL STORAGE		MOUNTING	STATUS
	DAY TANK	BULK TANK		
Ermelo Mainline Toll Plaza	+/-200L	+/- 1000L	Above ground with bund wall.	Satisfactory
Trichardtsfontein Mainline Toll Plaza	+/-200L	+/- 1000L	Above ground with bund wall.	Satisfactory
Leandra Mainline Toll Plaza	+/-200L	+/- 1000L	Above ground with bund wall.	Satisfactory
Leandra Ramp Toll Plaza	+/-200L	None		
Dalpark Mainline Toll Plaza	+/-200L	+/-2000L	Above ground with bund wall.	Satisfactory

TOLL PLAZAS	DIESEL STORAGE		MOUNTING	STATUS
	DAY TANK	BULK TANK		
Denne Road Ramp Toll Plaza	+/-190L	+/-2000L	Above ground with bund wall.	Satisfactory
Gosforth Mainline Toll Plaza	+/-200L	+/- 2000L	Above ground with bund wall.	Satisfactory
Gosforth West Ramp Toll Plaza	+/-200L	None		

### PS15.1.3 Water, Sewerage and other Municipal Levies

Included in Part C25 of Volume 4 is information indicating the Service/Utility Providers and contact details (where available) and the amounts spent.

Supply of Potable water		
TOLL PLAZAS	SERVICE PROVIDER	WATER STORAGE TANK
Ermelo Mainline Toll Plaza	Borehole	2 x 5 000L JoJo Tanks
Trichardtsfontein Mainline Toll Plaza	Govan Mbeki Municipality	2 x 5 000L JoJo Tanks
Leandra Mainline Toll Plaza	Borehole	2 x 5 000L JoJo Tanks
Leandra Ramp Toll Plaza	Borehole	None
Dalpark Mainline Toll Plaza	Ekurhuleni Metropolitan Municipality	2 x 5 000L JoJo Tanks
Denne Road Ramp Toll Plaza	Ekurhuleni Metropolitan Municipality	None
Gosforth Mainline Toll Plaza	Ekurhuleni Metropolitan Municipality	2 x 5 000L JoJo Tanks
Gosforth West Ramp Toll Plaza	Ekurhuleni Metropolitan Municipality	None

Sewage and WASTEWATER disposal	
TOLL PLAZAS	SERVICE PROVIDER
Ermelo Mainline Toll Plaza	Self-maintained septic tank and French drain
Trichardtsfontein Mainline Toll Plaza	Self-maintained septic tank and French drain
Leandra Mainline Toll Plaza	Self-maintained septic tank and French drain
Leandra Ramp Toll Plaza	Self-maintained septic tank and French drain
Dalpark Mainline Toll Plaza	Ekurhuleni Metropolitan Municipality
Denne Road Ramp Toll Plaza	Ekurhuleni Metropolitan Municipality
Gosforth Mainline Toll Plaza	Ekurhuleni Metropolitan Municipality
Gosforth West Ramp Toll Plaza	Ekurhuleni Metropolitan Municipality

### PS15.3 Marketing

The Employer marketing strategies will be provided once it is defined, and the Contractor shall participate in the Employers initiatives assist the Employer to achieve the target/market share.

### PS15.4 Safety and security

Add the following new Subclauses to this subsection:

#### “PS15.4.1.3.

*The Contractor is to ensure that the Toll Plaza concrete apron area (including tapers), is kept clear at all times of parked vehicles, people, hawkers, loiterers and the like.*

*The minimum-security requirements at the existing Toll Plazas are:*

- *One unarmed guard between 18h00 and 06h00 plus panic buttons in lanes and Control Room linked to an armed response. In addition, armed response supervisor to make at least two (2) Ad hoc visits at each Toll Plaza per night.*

*The Contractor shall interface with the Control Room managing the armed response to attend to any confirmed vandalised or theft activity indicated by the security cameras. The Contractor shall submit a monthly report on response times and action taken to secure the Employers assets. The Contractor shall*

carry the costs for all damage to the Employers assets due to the Contractor failing to secure the area as is specified.”

**PS17 PROJECT COMPLETION AND HAND BACK**

**PS17.1.1.3**

The completion date for this contract shall be 6 years from the start of the Operations Service Period.

**PS18 REPORTING**

Delete Table 18-1 and replace with the following table:

**Table 18-1: Report Register**

No.	Report Name	Purpose	Minimum Information	Frequency
<b>1. TRAFFIC REPORTS</b>				
a)	Hourly, Daily and Monthly Traffic Report, (per traffic direction and all directions).	Reports on the hourly, daily and monthly traffic per Vehicle Class.	<ul style="list-style-type: none"> <li>Total traffic per Vehicle Class per hour, day and month per lane, Toll Plaza / Tolling Point.</li> <li>Total traffic for all Toll Plazas / Tolling Points.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly (on daily and monthly traffic. Hourly traffic only on request. Exact combination of reporting to be submitted to be instructed by Employer).
<b>2. TRANSACTION PROCESSING REPORTS</b>				
a)	Transaction tariff report	To supply the latest tariff structure.	<ul style="list-style-type: none"> <li>Tariffs per Vehicle Class.</li> <li>Reporting generated from Back Office System.</li> </ul>	Bi-Annually
b)	Discount structure report	To supply the latest discount structures.	<ul style="list-style-type: none"> <li>Toll Plaza / ORT Discount structure per Vehicle Class.</li> <li>Reporting generated from Back Office System.</li> </ul>	Bi-Annually
c)	Transaction Record Details	To resolve queries on a Transaction Record and the relevant images.	<ul style="list-style-type: none"> <li>Transaction Record information.</li> <li>Image information (if available).</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc
d)	Class discrepancy acknowledgements	To monitor the acknowledgements of discrepancies.	<ul style="list-style-type: none"> <li>Unacknowledged discrepancies.</li> <li>Bulk acknowledged discrepancies.</li> <li>Manual acknowledged discrepancies.</li> <li>Discrepancies automatically acknowledged by the system.</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc
<b>3. FINANCIAL REPORTS</b>				
a)	Discount / exempt report	To supply information on Discount and Exempt Transactions.	<ul style="list-style-type: none"> <li>Discounted Transaction Records and the associated nominal and discounted Toll Tariffs.</li> <li>Exempt Transaction Records and the associated Toll Tariffs.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly



No.	Report Name	Purpose	Minimum Information	Frequency
b)	Account Status	Reports on accounts per account type.	<ul style="list-style-type: none"> <li>Total number of accounts.</li> <li>New accounts for past month.</li> <li>Accounts terminated.</li> <li>Status of accounts in terms of balances (above thresholds, below thresholds).</li> <li>Reporting generated from Back Office System and TCH System.</li> </ul>	Monthly
c)	Payment trends	To report on trends of usage of payment options and payment mechanisms.	<ul style="list-style-type: none"> <li>Users per payment option and payment mechanism.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly
<b>4. AUDIT TRAILS</b>				
a)	Audit Trails	To monitor additions and changes to data.	<ul style="list-style-type: none"> <li>Original data.</li> <li>Changed data.</li> <li>User identification of system user who was responsible for the addition / change of the data.</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc
b)	Access Control	To monitor access to the system.	<ul style="list-style-type: none"> <li>System user who logged in/logged out.</li> <li>Date and time of login/logout.</li> <li>Reporting generated from Back Office System.</li> </ul>	Bi-monthly
c)	Version Control Lists	To monitor the versions installed on the system.	<ul style="list-style-type: none"> <li>Module name/number.</li> <li>Version number.</li> <li>Compilation date of module.</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc
d)	Day/Month Closures	To determine the status of the day and/or month.	<ul style="list-style-type: none"> <li>Current system status for the day/month.</li> <li>Reporting generated from Back Office System.</li> </ul>	On closure of the day/month Ad Hoc
<b>5. SYSTEM MAINTENANCE REPORTS</b>				
a)	AVC Accuracies	Reports on the overall accuracies of the AVC when comparing the AVC class to the Actual Class.	<ul style="list-style-type: none"> <li>AVC accuracy per lane / Tolling Point.</li> <li>AVC accuracy for all lanes / Tolling Points.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly
b)	MTBF	Reports on the calculated MTBFs (based on the up time) for all the major subsystems.	<ul style="list-style-type: none"> <li>MTBF of the sub-systems.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly
c)	System Availability	Reports on the calculated availability (based on the duration of the downtime) for all the major subsystems, per subsystem and/or lane/Tolling Point.	<ul style="list-style-type: none"> <li>Time the system is in use.</li> <li>Time spent on maintenance.</li> <li>Down-time.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly

No.	Report Name	Purpose	Minimum Information	Frequency
d)	Equipment Failures Report	Reports on the equipment failures.	<ul style="list-style-type: none"> <li>Equipment failures per lane/ Tolling Point and subsystem during a selected period.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly
e)	Incident report	Reports on incidents that occurred on the system.	<ul style="list-style-type: none"> <li>Incident type.</li> <li>Date and time when incident occurred.</li> <li>Corresponding Transaction Record (if available).</li> <li>Summarized incident information per lane / Tolling Point.</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc
f)	Response and Repair Times	To report on the incident response and repair time.	<ul style="list-style-type: none"> <li>Time Incident occurred.</li> <li>Time when it was acknowledged.</li> <li>Time when it was resolved / repaired (If applicable).</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly
g)	Dashboard	To report on information as supplied by the dashboard Software applications.	<ul style="list-style-type: none"> <li>Depends on the dashboard Software application.</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc
h)	VGS Availability	To report on the availability of the VGS System.	<ul style="list-style-type: none"> <li>Daily availability checks.</li> <li>Daily checks consolidated in monthly report.</li> <li>Check camera views.</li> <li>Check auto reporting.</li> <li>Check incident creation.</li> <li>Check remote availability for Employer.</li> </ul>	Monthly
i)	QLS Availability	To report on the availability of the QLS System.	<ul style="list-style-type: none"> <li>Daily availability checks.</li> <li>Daily checks consolidated in monthly report.</li> <li>Check camera views.</li> <li>Check auto reporting.</li> <li>Check incident creation.</li> <li>Check remote availability for Employer.</li> </ul>	Monthly
j)	VGS Accuracy	To report the accuracy of the VGS system.	<ul style="list-style-type: none"> <li>Check trigger accuracy.</li> <li>Check camera availability.</li> <li>Check incident and image storage.</li> <li>Check back-up availability.</li> <li>Check image quality daily.</li> <li>Consolidate monthly checks in monthly reports.</li> </ul>	Monthly
<b>6. OTHER MAINTENANCE REPORTS</b>				
	Upgrade Reports	To report on upgrades of system or equipment.	<ul style="list-style-type: none"> <li>System and hardware upgrade information.</li> <li>Reporting generated from Back Office System and manually.</li> </ul>	Monthly
a)	Problem Data Reports	To report on any data losses, data corruption, data problems.	<ul style="list-style-type: none"> <li>Transaction Record and payment data lost.</li> <li>Corrupt Transaction Record and payment data.</li> </ul>	Monthly

No.	Report Name	Purpose	Minimum Information	Frequency
			<ul style="list-style-type: none"> <li>Other data problems.</li> <li>Reporting generated from Back Office System.</li> </ul>	
b)	Support Reports	To report on all support and maintenance actions.	<ul style="list-style-type: none"> <li>Number of support requests.</li> <li>Support request actions.</li> <li>Problem resolved status.</li> <li>Reporting from the support Help Desk.</li> </ul>	Monthly
c)	Stock and Spares Reports	To report on stock and spares levels.	<ul style="list-style-type: none"> <li>Tags in stock.</li> <li>Spares levels along the route.</li> <li>Reporting from the Asset Management System.</li> </ul>	Monthly
d)	SCADA Accuracy and Availability Report	To report on the Accuracy of the SCADA System Reporting and availability thereof.	<ul style="list-style-type: none"> <li>Check generator for battery state, charge state, generator running state, water jacket status, fuel level, etc.</li> <li>Check Eskom/UPS/Generator availability and active statuses.</li> <li>Check UPS supply status system health inventor status, battery condition status, UPS room temperature.</li> <li>Check for borehole condition and running options.</li> <li>Check that historical reporting is available.</li> <li>Server room temperature.</li> <li>Verified daily and reported monthly.</li> </ul>	Monthly
<b>7. ACCOUNTING AND CONTRACTUAL</b>				
a)	Financial Statements	To report on the financial status of the Contractor.	The Contractor shall supply the Employer within ninety (90) days of the end of the operating year the annual audited financial report and accounts of the Contractor as per the GAAP.	
b)	Contractual Reporting	To report on contractual issues.	<p>The Contractor shall notify the Employer prior to taking any action which would result in any change in:</p> <ul style="list-style-type: none"> <li>Management and organisational structure;</li> <li>Change in appointment of Chief Executive Officer, Chief Finance Officer or any other senior technical staff of the Contractor;</li> <li>Contracts to be executed by the Contractor for the purpose of implementing the Agreement;</li> <li>Change in fiscal year; and</li> <li>Change in Memorandum and Articles of Association or the shareholders agreement of the Contractor;</li> <li>Any change shall require consent from the Employer as such a change may not alter the shareholder composition in terms of the tendered black economic empowerment content within the original Tender as well as the associated overall financial position of the Tenderer;</li> <li>Manually created report.</li> </ul>	

No.	Report Name	Purpose	Minimum Information	Frequency
<b>8. ELECTRICAL AND MECHANICAL</b>				
a)	General Electrical Equipment Report	To report on electrical issues.	<p>The report shall include but not be limited to the following minimum inspection and testing requirements:</p> <ul style="list-style-type: none"> <li>• Inspect all distribution boards.</li> <li>• Test all earth leakage units.</li> <li>• Inspect wiring.</li> <li>• Labelling.</li> <li>• Legend cards.</li> <li>• Generate manually from inspections.</li> </ul>	Every 2 years
b)	Generator Report	To report on the electrical and mechanical status of all the standby generators.	<ul style="list-style-type: none"> <li>• Generator status.</li> <li>• Generator room condition.</li> <li>• Generator test results.</li> <li>• Oil sample test results by an approved lubrication analyst laboratory.</li> <li>• Availability of spares and the supplier's details.</li> <li>• Dummy load test.</li> <li>• (Mobile dummy load to be provided by Contractor if no dummy load on site). The plaza electrical load shall not be used as test load during testing.</li> <li>• A copy of the generator lock book for the period of the report.</li> <li>• Rotation testing of the movable generator (if relevant). The movable generator to be tested at several sites so that the movable generator and change over system can be tested at each site once a year.</li> <li>• Generate manually from inspections.</li> </ul>	6 Monthly
c)	UPS Report	To report on the status of all the UPS's.	<ul style="list-style-type: none"> <li>• The UPS status i.e. all available voltages frequencies, currents and alarm conditions. Any data recoded by the UPS to be included in the UPS report. The Contractor to obtain the required communication device from the manufacturer to extract data if required at their own cost.</li> <li>• The condition of the UPS rooms i.e. cleanliness of the room, room temperature, etc.</li> <li>• UPS load test. The load test will be done over a period of 30min with readings every 5 minutes. The results shall be plotted on a graph to estimate the total battery standby time.</li> <li>• The Contractor shall also execute an impedance test on each battery and report the value.</li> <li>• A copy of the UPS logbook for the period of the report.</li> <li>• Generate manually from inspections.</li> </ul>	2 Monthly
d)	Earthing and Lightning	To report on the earthing and	<ul style="list-style-type: none"> <li>• As-built based drawing indicating the test points with the test values obtained at the earth node.</li> </ul>	6 Monthly

No.	Report Name	Purpose	Minimum Information	Frequency
	Protection Status Report	lightning protection.	<ul style="list-style-type: none"> <li>• Each earth node on the drawing shall be numbered that can be referred back to a comprehensive test report.</li> <li>• A comprehensive test report that shall be updated with every earthing test and submitted to the Employer every six months.</li> <li>• The earthing nodes shall be tested as indicated on the as-built drawings with the base values on the as-built drawings as reference. Any changes in the earthing values will be investigated and corrective action motivated by the Contractor with reference to the SANS regulation.</li> <li>• The comprehensive test report shall also include a soil resistivity test taken on the day of the earthing test.</li> <li>• The final earthing report to be approved by the Employer with the option to add or change the report when required.</li> <li>• All surge arrestors shall be inspected, and the status reported.</li> <li>• Generate manually from inspections.</li> </ul>	
e)	Corrosion Protection Report	To report on the corrosion status of the facilities, i.e. steel structures, roofs etc.	<ul style="list-style-type: none"> <li>• Discuss the corrosion status of the facilities, (e.g. water reservoir, fencing, building elements, poles and masts, structural steelwork, etc.)</li> <li>• Recommendations regarding the paint systems required to protect the assets.</li> <li>• Provide a program to attend to the corrosion problems identified in the corrosion report.</li> <li>• The report shall be compiled by a competent registered corrosion specialist to the Employer.</li> <li>• Generate manually from inspections.</li> </ul>	3 Yearly
f)	Handyman Report	To report on all damaged and failed equipment and the corrective action taken.	<ul style="list-style-type: none"> <li>• All damaged and failed equipment i.e. taps doors, windows locks, paint, cracks, etc.</li> <li>• Corrective action and an estimated completion date with a program if necessary or as requested by the Operational Manager.</li> <li>• Generate manually from inspections.</li> </ul>	Monthly
g)	Heating Ventilation and Air Conditioning Report	To discuss the status of the HVAC equipment and maintenance carried out.	<ul style="list-style-type: none"> <li>• The report shall discuss the status of the HVAC equipment and maintenance carried out.</li> <li>• The Contractor shall also provide corrective action and an estimated program on the repairs to the Employer on problems identified in the HVAC report.</li> <li>• Generate manually from inspections.</li> </ul>	Monthly
h)	Fire Detection System Report.	To report on the status of the fire detection system.	<ul style="list-style-type: none"> <li>• Status of the fire detection system.</li> <li>• Action taken to restore any problem or alarm condition.</li> <li>• Generate manually from inspections.</li> </ul>	Ad Hoc

No.	Report Name	Purpose	Minimum Information	Frequency
i)	Security and Access Control Report	To report on the status of the security and access control system.	<ul style="list-style-type: none"> <li>The status of the security and access control system.</li> <li>Action taken to restore any problem or alarm condition.</li> <li>The alarms and access control system reports to be extracted and added to the Contractor's security and access control report.</li> <li>A corrective action and program to attend to problems identified in the security and access control report.</li> <li>Generate manually from inspections.</li> </ul>	Ad Hoc
j)	Route Patrol Reports	To report on the Route Patrol Service.	<ul style="list-style-type: none"> <li>Consolidated report on frequency of patrols.</li> <li>Reporting on daily activities.</li> <li>Verification of incidents.</li> <li>Daily reporting on equipment.</li> <li>Vehicle roadworthy reporting.</li> <li>Staff training certification</li> </ul>	Monthly
k)	Solar System Reports	In the event where Solar System are installed, the Contractor is to report on the well-being of the system	<ul style="list-style-type: none"> <li>Charge/discharge curves</li> <li>SOC/DOD data</li> <li>Total Production Power</li> <li>Total Usage Power</li> <li>Total Charge Power</li> <li>Equipment Status</li> <li>Surge and other Protection Status</li> <li>Risks</li> </ul>	Monthly
<b>9. PERFORMANCE MEASUREMENT REPORTS</b>				
a)	Performance Measurement Report	To report on all the KPIs that is applicable in the Contract in accordance with The Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2 Book 6a). This report serves as input in the performance adjustments in the monthly payment certificate of the Contractor.	<ul style="list-style-type: none"> <li>For each KPI, the Performance Measurement score shall be provided for the immediate previous month.</li> <li>The comparative previous 12 months scores shall also be provided.</li> <li>The report shall be supported by an Annexure containing the measurements and calculations to determine the KPI scores.</li> </ul>	Monthly
<b>10. TOLL SYSTEM PROGRESS REPORT</b>				
a)	Progress Report	To report on the progress of the Toll System during the Design-Build period.	<ul style="list-style-type: none"> <li>As specified in Project Document Volume 3.</li> </ul>	To be determined by the Employer's Representative

Delete table 18-2 and replace with the following table:

**Table 18-2: Conventional Toll Plaza Additional Report Register**

No.	Report Name	Purpose	Minimum Information	Frequency
<b>1. TRAFFIC REPORTS</b>				
a)	Hourly, Daily and Monthly Traffic Report, (per traffic direction and all directions)	Reports on the hourly, daily and monthly Traffic per Vehicle Class.	<ul style="list-style-type: none"> <li>Total traffic per Vehicle Class per hour, day and month per Lane, Toll Plaza.</li> <li>Total traffic for all Toll Plazas.</li> <li>Reporting generated from Back Office System.</li> </ul>	Monthly (on daily and monthly traffic. Hourly traffic only on request. Exact combination of reporting to be submitted to be instructed by Employer).
<b>2. TRANSACTION PROCESSING REPORTS</b>				
<b>3. FINANCIAL REPORTS</b>				
a)	Daily Payments	Reports on payments received on local Customer Accounts.	<ul style="list-style-type: none"> <li>Payments received per calendar day for account registering, recharges etc., including cash, Bank Issued Card transactions, Bank Debit Card transactions, Smart Card, etc. received at each Toll Plaza and in total.</li> <li>Reporting generated from the Back-Office System.</li> </ul>	Monthly
b)	Revenue Banked	Reports on Revenue banked.	<ul style="list-style-type: none"> <li>Revenue banked daily, indicating cumulative difference between Revenue banked and Revenue received at all Toll Plazas.</li> <li>Reporting generated from the Back-Office System.</li> </ul>	Monthly
c)	Cash-up Reports	To report on cash-ups performed on the system.	<ul style="list-style-type: none"> <li>Reconciliation of income declared versus income expected by the system.</li> <li>Reporting generated from the Back-Office System.</li> </ul>	Monthly
<b>4. AUDIT TRAILS</b>				
a)	Validation Lists Retrieved	To audit the movement of the Validation List(s) from the banks.	Listing of: <ul style="list-style-type: none"> <li>Validation List(s) identification number /name.</li> <li>Time retrieved from the banks.</li> <li>Time transferred to the lanes.</li> <li>Reporting generated from Back Office System.</li> </ul>	Ad Hoc

Delete table 18-3 and replace with the following table:

**Table 18-3: ORT Additional Report Register**

No.	Report Name	Purpose	Minimum Information	Frequency
<b>1. TRAFFIC REPORTS</b>				
a)	Hourly, Daily and Monthly Traffic Report, (per traffic direction	Reports on the hourly, daily and monthly Traffic per Vehicle Class.	<ul style="list-style-type: none"> <li>Total traffic per Vehicle Class per hour, day and month per Tolling Point.</li> <li>Total traffic for all Tolling Points.</li> </ul>	Monthly (on daily and monthly traffic. Hourly traffic only on

No.	Report Name	Purpose	Minimum Information	Frequency
	and all directions)		<ul style="list-style-type: none"> <li>Reporting generated from Back Office System.</li> </ul>	request. Exact combination of reporting to be submitted to be instructed by Employer).
<b>2. TRANSACTION PROCESSING REPORTS</b>				
a)	Back Office Transaction Record Reconciliation Report	Reports on Transaction Record reconciliation information per calendar day.	<ul style="list-style-type: none"> <li>Transaction Records received from the RSS.</li> <li>Transaction Records transferred to the TCH System.</li> <li>Transaction Records to be processed, e.g. MNPR Transaction Records.</li> <li>Transaction Records of previous days transferred to the TCH system.</li> <li>Reporting from Back Office System.</li> </ul>	Monthly
b)	Image Processing	Reports on the ANPR and MNPR processing statistics.	<ul style="list-style-type: none"> <li>Percentage of automatic reads (ANPR process).</li> <li>Percentage of manual reads (MNPR process).</li> <li>Percentage of unsuccessful reads due to equipment error.</li> <li>Percentage of unsuccessful reads not due to equipment error.</li> <li>Reporting from Back Office System.</li> </ul>	Ad Hoc
c)	MNPR process tracking	To report on the disposition codes of images during MNPR process, together with the MNPR processing statistics.	<ul style="list-style-type: none"> <li>Successful processing.</li> <li>Unreadable.</li> <li>No Vehicle License Plate in image.</li> <li>Image too dark.</li> <li>Image too light.</li> <li>Reporting from Back Office System.</li> </ul>	Ad Hoc
<b>3. FINANCIAL REPORTS</b>				
a)	Financial Reconciliation Report	To supply the financial reconciliation information of the Transaction Records as they are handed over to the TCH.	<ul style="list-style-type: none"> <li>Transaction Records sent to the TCH and the associated nominal Toll Tariffs.</li> <li>Transaction Records sent to the TCH and the associated Discounted Toll Tariffs.</li> <li>Transaction rejections.</li> <li>Transaction Record processing costs for transactions sent to the TCH.</li> <li>Reporting from Back Office System.</li> </ul>	Monthly
b)	Payments banked	Reports on payments into Customer Accounts banked.	<ul style="list-style-type: none"> <li>Payments banked daily, indicating cumulative difference between payments banked and payments received at all Point of Presence Service Centres.</li> <li>Reporting from the TCH System.</li> </ul>	Monthly
c)	Transaction status	To determine the financial status of the Project in terms of transactions that were paid, violations,	<ul style="list-style-type: none"> <li>Reconciliation of all transactions that were sent from the Back Office to the TCH Back Office with the updated transactions as received back from the TCH.</li> <li>Reporting from the TCH System.</li> </ul>	Monthly



No.	Report Name	Purpose	Minimum Information	Frequency
		exempted, discounts etc.		
d)	Cash-up reports	To report on Cash-ups performed on the system.	<ul style="list-style-type: none"> <li>Reconciliation of payments received at CS PoP's and banked versus payments expected by the system.</li> <li>Reporting from the Back Office and TCH System.</li> </ul>	Monthly
<b>4. AUDIT TRAILS</b>				
a)	Validation lists Retrieved	To audit the movement of the Validation List(s) from the TCH to the RSS.	Listing of: <ul style="list-style-type: none"> <li>Validation list(s) identification number/name.</li> <li>Time retrieved from the TCH System.</li> <li>Time transferred to the RSS.</li> <li>Reporting from Back Office System.</li> </ul>	Ad Hoc
b)	Data Transmission	To audit the movement of data from the Back Office to the TCH and vice versa.	Listing of: <ul style="list-style-type: none"> <li>Date and time when data were transmitted to the TCH System.</li> <li>Date and time when data were retrieved from the TCH System.</li> <li>Reporting from Back Office System.</li> </ul>	Ad Hoc

Add the following clause:

**“PS 18.4 Performance Measurement Model Reports**

*Over and above the reports in Sections 18.2 and 18.3, the Contractor shall develop and provide any reports required for the purposes of successfully and accurately populating the Performance Measurement Model as described in Volume 2 Book 6a. This would also include any reports required to satisfy KPI's added by the Performance Review Committee.”*

**PS19 TOLL ROAD SERVICES**

Modify this subclause to read as follows:

**PS19.2 Road Incident Management Systems (RIMS)**

All references made to Incident Management System (IMS) to be changed to read Road Incident Management Systems (RIMS)

**PS19.2.1.1**

The Contractor shall participate on the existing RIMS which operate along the existing N17 Toll Road. The details are included in Part C28 of Volume 4.

**PS19.3 CUSTOMER CALL CENTRE**

**PS19.3.1 Introduction**

The Contractor may utilize the facilities at the existing Toll Plazas for this purpose. The Contractor is to note that there are no upgrades scheduled to the existing facilities for the duration of the Contract.

**PS 19.3.3.2 Services to be provided include:**

- Activating an action in respect of the appropriate response - e.g. 5 minutes
- Arrival at the scene with a patrol vehicle - e.g. 30 minutes

The Contractor is to record the distance required to travel to the scene using vehicle tracking system and will be taken into consideration for mitigation should the arrival time exceed the required 30 minutes.

Add the following clause:

**“PS19.3.3.3**

*The frequency of road signs for the Call Centre contact number shall be two (2) signs (one per direction) for every 20km of toll road.”*

**PS19.4 ROUTINE SERVICE PATROL**

**PS19.4.1 General**

The Contractor shall perform the Routine Service Patrol along the N17 Toll Road in three (3) sections, from Ermelo to Wemmerpan, and is therefore required to provide three (3) patrol vehicles, as follows:

- One vehicle will be required to operate from Ermelo Plaza to Leandra Plaza;
- The second vehicle from Leandra to Dalpark, and
- The third from Dalpark to Wemmer Pan.

The N17 Toll Road stretches from the Wemmer Pan Interchange (km 0.0 – Section 1) to Ermelo (km 43.1 – Section 4), of which the total distance is approximately 199.1 km.

The Contractor shall patrol each section of the N17 Toll Road with at least two (2) return trips every eight (8) hours. The return trip is defined from starting point, patrolling the entire route and returning to the starting point. The route patrol vehicle is to interrupt each return trip by spending an appropriate time at the various “Hot Spots” identified along the N17 Toll Road.

Modify this subclause PS 9.4.1.7 to read as follows:

**PS 9.4.1.7**

All relevant vehicles used shall be LDVs, fitted with a standard “Off-the-shelf” type tracking system, with the SMS option to alert the relevant Control Centre that the vehicle is off the route. The positioning data, including speed and direction, shall be transmitted in real time, to a computer situated at a location as indicated by the Employer. The minimum requirements for the LDVs to be used shall, in addition to Table 19-1, be the following:

- Single cab vehicle
- Airbags – 3
- ABS brakes
- Minimum engine size of 2 litres
- Vehicle should have a bull bar
- Vehicle should have a canopy

**PS19.4.1.8 Table 19-1: Minimum Patrol Vehicle Equipment**

After this table add the following:

*“Table 19-2: Minimum Requirements for First Aid Kit*

	<b>FIRST AID EQUIPMENT</b>	<b>Size</b>	<b>No Off</b>
1	<i>Gauze Swabs - 100's</i>		4
2	<i>Swabs Sterile - 5's</i>		2
3	<i>Plastic Forceps</i>		1
4	<i>Safety Pins - 12's</i>		1
5	<i>First Aid Scissors</i>	10 cm	1
6	<i>Rescue Scissors</i>	19 cm	1
7	<i>Triangular Bandages - Non-Woven</i>		5
8	<i>Conforming Bandages</i>	75 mm	6
9	<i>Conforming Bandages</i>	100 mm	10
10	<i>Conforming Bandages</i>	150 mm	6
11	<i>Crepe Bandages</i>	100 mm	6
12	<i>Crepe Bandages</i>	150 mm	2
13	<i>Fabric Roll Plaster</i>	25 mm x 3 m	1

	<b>FIRST AID EQUIPMENT</b>	<b>Size</b>	<b>No Off</b>
14	Anti-Allergic Tape (Paper Plaster)	25 mm x 3 m	1
15	Box Waterproof Plasters - 20's various sizes		1
16	F.A.D.3	75 x 100 mm	4
17	F.A.D.5	150 x 200 mm	4
18	Wooden Splints		4
19	Examination Gloves Nitrile Powder Free		1 Box (100)
20	Burn shield	20 x 20 cm	5
21	Burn shield	20 x 45 cm	6
22	Burn shield	60 x 45 cm	2
23	CPR (Respaid) Mouth Pieces		4
24	D-Germ Alcohol and Chlorhexidine Hand rub	500 ml	1
25	Red Medical Waste Bags	(Small)	20
26	Rescue/Space Blanket		1
27	Medical Jump bag		1

**PS20 Annexure A1: Schedule of Assets**

The table references to be modified as follows:

<b>Delete Reference</b>	<b>New Reference</b>
Table 20.1: Employer Fixed Assets	Table A1.1 Employer Fixed Assets
Table 20.2: Employer Equipment	Table A1.2 Employer Equipment
Table 20.3: Employer Documents	Table A1.3 Employer Documents
Table 20.4: Plant Assets	Table A2.1 Permanent Design-Build Assets – Plant
Table 20.5: Materials	Table A2.2 Permanent Design-Build Assets – Materials
Table 20.6: Contractors Documents	Table A2.3 Permanent Design-Build Assets – Contractors Documents

### **C3.2.3 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATION FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: ELECTRICAL AND MECHANICAL EQUIPMENT (VOLUME 2 BOOK 3)**

The number of each Clause in a Particular Specification in this section consists of the Prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specification for the Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment (Volume 2 Book 3). The number of any new Clause which does not form part of any Clause in the Standard Specification for the Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment (Volume 2 Book 3), and which is included herein, is also prefixed by PS followed by a new number. Such new numbers follow on the last Clause used in the relevant section of the Standard Specification for the Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment (Volume 2 Book 3).

#### **PS1.3 REGULATION AND STANDARDS**

Add the following Clauses:

- "PS1.3.1.12 NRS 097, Grid interconnection for embedded generation: Installations <100kW."*
- "PS1.3.1.13 NRS 48, Electricity supply – Quality of supply."*
- "PS1.3.1.14 SANS NRS 052-2-1, Test procedures for main components – Photovoltaic modules."*
- "PS1.3.1.15 SANS 10142-1-2, Wiring of Premises - Additional special requirements for low voltage small scale embedded generator installation connected to the grid. (Still to be released)"*
- "PS1.3.1.16 NRS 097 standards where applicable."*
- "PS1.3.1.17 SANS 1455 Energy performance certificate for buildings."*
- "PS1.3.1.18 SANS 10087 The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial and industrial installations."*
- "PS1.3.1.19 SANS 474 Electrical metering – Standard requirements."*
- "PS1.3.1.20 SANS/IEC 60364-7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply system."*
- "PS1.3.1.21 SANRAL Standard Electrical Specifications Revision 00 Dated 1 August 2021. The Standard is included under item F01 to Volume 4, Project Information Document."*

#### **PS1.16 Basic Power Arrangement**

Add the following Clause:

*"PS1.16.2 The Contractor shall consider IEC 60364-8-1 "Electrical energy efficiency within low-voltage electrical installations" when designing or planning the procurement and installation of new electrical material and equipment."*

Add the following subclauses:

#### **"PS1.19 Anti-Vandal measures**

*PS1.19.1 The Contractor shall use the anti-vandal measures provided in the SANRAL Standard Electrical Specifications Revision 00 1 August 2021 and drawings in Volume 4 (Project Information Document)."*

## **PS3 EQUIPMENT TO BE USED IN SWITCHBOARDS**

### **PS3.13 Indicating Instruments**

Add the following Clauses:

#### **“PS3.13.7 Basic Specification for Power Meter**

- PS3.13.7.1 DIN rail (preferred) or wall mounted power meter with CTs for useful measurements as per item E below, Data Communication and Multi tariffs.*
- PS3.13.7.2 The Power Meter shall be backlit and powered with auxiliary control power.*
- PS3.13.7.3 It shall provide measurement of the value for voltage for single-phase with neutral / three-phase with or without neutral network.*
- PS3.13.7.4 The Power Meter shall be associated with Current Transformers.*
- PS3.13.7.5 It must measure the values of: I, In, U, V, PQS, PF, Hz, Active/Reactive/Apparent Energy Import and Export, Power/Current demand, Present and Peak Demand, Min-Max and THD (up to 15th Harmonic).*
- PS3.13.7.6 The meter shall have configurable and time-stamped alarms.*
- PS3.13.7.7 The meter shall have a Modbus communication port.*
- PS3.13.7.8 The Power Meter shall be equipped with a display for measurement and for configuration. All information shall be available from the display. It shall be possible to perform the setup via the display; no dip switches or other hardware adjustments shall be required for setup.*
- PS3.13.7.9 The display shall be able to indicate Normal/Alarm situations.*
- PS3.13.7.10 An error code for diagnosis shall be displayed in case of error.*
- PS3.13.7.11 The Power Meter shall be of DIN Rail type to fit any standard distribution board without modification should spare space be available when installed on the DIN Rail.*
- PS3.13.7.12 For Power Meters with CT measurement accuracy to comply with IEC 61557-12 (Performance measuring and monitoring devices).*
- PS3.13.7.13 The Power Meter shall be IP40 front panel, IP20 casing.*
- PS3.13.7.14 To ensure safety of goods and people, the installation category of the Power Meter shall be III, and the degree of pollution two (2).*
- PS3.13.7.15 The meter shall be rated for an operating temperature range of -25°C to +55°C.*
- PS3.13.7.16 The Power Meter shall be able to automatically provide data files with the values as per item E above to a server or location where the data can be downloaded already processed or in CSV file format for processing without third (3rd) party dependent intervention via GPRS. The SIM for the energy meter will be provided.*

*PS3.13.7.17 The energy meter solution must have a data logging function, duration (period data can be stored) to be indicated based on a 15-minute sample rate for Active/Reactive /Apparent power.*

*PS3.13.7.18 The meter must be able to store a minimum of three (3) months of data.*

*PS3.13.7.19 The meter shall be provided with a web server for remote viewing of the data. Remote viewing can be via Ethernet LAN or GPRS if possible.*

*PS3.13.7.20 The energy meter installation shall be a complete solution from supply, installation to the setup of the meter. The setup and intervals of values stored to be agreed before the installation commence.*

*PS3.13.7.21 The Contractor can propose alternative to any of the above items with motivation.*

*PS3.13.7.22 The meter shall comply with SANS 474.”*

*PS3.13.7.23 Reference to power or energy meter shall have the same meaning.*

*PS3.13.7.24 New energy meters shall be installed as required by the Contract.”*

The Contractor to supply and install a power meter at each mainline and remote ramp toll plaza based on the above specification within three (3) months from the Commencement Date for the Operations Service Period. The Employer Representative shall have access to the data on the meter via the Contractors data network or GPRS other agreed operational procedure from the end of month four (4) after the Commencement Date for the Operations Service Period.

Depending on the site conditions, the power meter shall be installed after the changeover switch to continuously measure the Toll Plaza parameters as approve by the Employer’s Representative.

## **PS3.13.8 Energy and Power Management Software Specification**

### **PS3.13.8.1 Software - General**

- a) Furnish a dedicated, edge control, software platform (The Software Platform) that is purpose-built to be the operational interface for an Energy and Power Management System (EPMS) whose primary purpose is to support the provision and management of safe, reliable and efficient power within buildings and facilities. The Software Platform shall have specialized data acquisition, visualization, analysis and reporting tools specifically designed for Power Management applications such as:
  - i) Electrical System Capacity Management
  - ii) Power Quality Monitoring and Compliance.
  - iii) Multi Source Management.
  - iv) Continuous Electrical Thermal Monitoring.
  - v) Breaker Setting Monitoring.
  - vi) Backup Power Testing.
  - vii) Power Events Analysis.
  - viii) Energy Usage Analysis and Energy Benchmarking.
  - ix) Utility Bill Verification and Cost Allocation
  - x) Energy Performance Analysis and Verification.
  - xi) Active Arc Flash Protection

- b) The Contractor shall set-up and commission iii, viii, ix and x with other applications to be set up, if required.
- c) The Software Platform shall natively support (no additional installation or configuration of the software required) at least 112 devices specifically designed for power distribution and power quality monitoring including: programmable power analysers, power meters, branch and multi-circuit meters, smart panels with communicating circuit breakers, protection relays, uninterruptable power supplies, active harmonic filters, capacitor bank controllers, electrical distribution thermal sensors.
- xii) All registers shall be pre-mapped to standard measurement names – no additional register mapping required.
  - xiii) All native device types will come with a comprehensive set of a factory device graphical screens – no additional graphics creation or installation required.
  - xiv) All native device types have been factory-tested and proven to perform.
- d) The Software Platform's web applications shall be simultaneously accessible from their unique web addresses so that they may be embedded in other web-based software environments.
- e) The functionality of the Software Platform shall be extensible whereby additional capabilities may be added via software license activation codes without the need to install additional software modules or add-ons.
- f) The Software Platform shall be certified as part of an Energy Data Management System according to the sections of the following ISO standards:
- i) ISO 50001
    - Energy review
    - Energy baseline
    - Energy performance indicators
    - Monitoring, measurement, and analysis
    - Input to management review
  - ii) ISO 50002
    - Data collection
    - Measurement plan
    - Analysis
    - Energy audit reporting
- g) The Software Platform shall be certified to comply with cybersecurity standard IEC62443 at the component level: IEC62443-4-1 and IEC62443-4-2 (SL1).
- h) The Software Platform shall be designed to streamline the process of checking and maintaining EN50160 and IEEE 519 Power Quality compliance.
- i) The Software Platform shall natively support the vendor's continuous electrical thermal monitoring system with the ability to detect abnormal bus bar or cable temperatures due to loose or faulty connections and to prevent equipment damage and fire.
- j) The Software Platform shall be designed to integrate and embed within the vendor's Building Management System (BMS) software platform to provide Energy and Power Management applications within the context of the BMS environment.
- k) The Software Platform shall natively support the vendor's active arc flash protection system with the ability to detect and then distinctively indicate, classify and display alarm information as an arc flash alarm.

### **PS3.13.8.2 Software – Real Time Monitoring**

- a) The Software Platform shall support Auto Network Diagram Creation whereby a comprehensive set of linked hierarchical graphical diagrams is automatically created for all directly connected devices in the power monitoring network.
- b) The Software Platform shall support advanced power quality meters with onboard High Speed Power Analysis with Disturbance Direction Detection (DDD) capabilities and come equipped with a built-in set of real-time graphical indicators for use in electrical one-line diagrams that indicate:
  - iii) The type of Power Quality Disturbance (sag, swell, transient).
  - iv) The direction of Power Quality Disturbance relative to the compliant DDD device (upstream, downstream).
- c) The Software Platform shall provide real-time indication of the aggregated demand being measured by one or more devices in a predefined zone. The application shall allow:
  - i) The demand for the zone to be expressed using either Kilowatts or normalized Kilowatts/Area.
  - ii) Visual indication of how the present demand for a zone compares with four (4) configurable limits / targets using a colour scale.
  - iii) Configurable limits shall be further configurable to allow for the use of different values during an On-Peak period compared to an Off-Peak period.
  - iv) The Software Platform shall allow web client users to quickly and easily create interactive dashboard visualization of any real-time measurements that:
  - v) Display tabular and trend line views to compare device readings from multiple devices in the power monitoring network including power meters.
  - vi) Permit users to create, modify, view and share views directly from the web client browser without the need for a separate software application
  - vii) Support both physical and virtual devices defined in the system.
  - viii) Support exporting real time data into Excel formats directly from the web client browser environment.
  - ix) The Software Platform shall support arc flash protection devices with a built-in set of real-time graphical indicators for use in electrical one-line diagrams that indicate occurrence of arc flash incidents.
- d) The Software Platform shall continuously monitor the health status of the arc flash sensors and the sensor's interconnection between different devices. In case of bad health state, the operator shall receive an alarm in the Software Platform.

### **PS3.13.8.3 Software – Alarm and Event Analysis and Notification**

- a) The Software Platform shall be able to acquire specialized, high speed power disturbance data directly from onboard advanced power quality meters for the purpose of Power Events Analysis, including:
  - i) Timestamped Power Events with Disturbance Direction Detection (DDD).
  - ii) Timestamped high speed (1/2 cycle sample rate) pre/post event RMS data.
  - iii) Pre/post event waveform captures (Voltage and Current all phases).
- b) The Software Platform shall provide a web based power events analysis application that includes but is not limited to the following features:
  - i) Automatic, intelligent clustering of events into alarms and multiple alarms from multiple devices into "incidents" to simplify the analysis of multiple cascading events.
  - ii) Automatic categorization of alarms and incidents into predefined categories such as Power Quality, Energy Management, Arc Flash, Arc Fault, Load Loss, Diagnostics, and Other.
  - iii) Predefined views for events, alarms and incidents with intuitive navigation and easy to use, configurable filters based on priority, status, source and categories.
  - iv) Ability to create private or shared event, alarm and incident views with custom filters.



- v) Popup window with detailed information about where, what and when an alarm or incident happened, plus other relevant information including Power Quality details and a thumbnail summary view of all waveforms associated with the alarm or incident.
  - vi) For Power Quality alarms or incidents captured by Disturbance Direction Detection (DDD) compliant devices there shall be clear graphical indication of the direction of the disturbance (upstream or downstream relative to the DDD compliant device).
  - vii) For Power Quality alarms or incidents captured by advanced power quality meters, there shall be indication of the changes in steady state electrical loads as a result of a voltage disturbance.
- c) The Software Platform shall provide a graphical timeline view of alarms and events that constitute an “incident” in the electrical distribution network. The timeline view shall:
- i) Display alarms/events stacked by order of time for sequence of events analysis.
  - ii) Display the start and end of alarms/events with color-coded dots.
  - iii) Indicate the direction of a Power Disturbance and if there are captured waveforms associated with the incident.
  - iv) Have a configurable analysis window with a color-coded time slider that uses colour to indicate areas in the timeline where there are greater numbers of alarms.
  - v) Be able to display pre- and post-event high speed RMS data coming from supported power quality meters.
- d) The Software Platform shall include a web-based Smart Waveform Analyzer interface with the following capabilities:
- i) Toggle on/off Voltage/Current channels.
  - ii) RMS calculation, zoom, pan, export to CSV.
  - iii) Interactive phasor and harmonic (voltage and current) diagrams.
  - iv) Allow multiple waveforms to be compared to each other.
  - v) Select two reference points on a waveform and compare their values.
  - vi) The Software Platform shall include an alarm annunciator to display the total number of unacknowledged alarms with a breakdown of how many are high, medium and low priority and shall allow easy navigation to the alarm viewer with a single click.
- e) The Software Platform shall provide the ability to send email notifications based on recent changes to the system which will be used to formulate notification types including:
- i) Communication Loss Notification – sent when the Software Platform loses communication with selected devices.
  - ii) Alarm Summary Notification – sent regularly to indicate changes in the average amount of high, medium, and low priority alarms.
  - iii) Power Quality Event Notification – sent regularly to indicate changes in the average amount, duration, and magnitude of Sag, Swell and Transient power disturbances.
  - iv) Data Log Status Notification – sent when PC logging of device data is stopped or interrupted.
  - v) The Software Platform shall have a web-based Alarm Configuration interface to allow end users to create smart alarms with the following capabilities:
  - vi) Realtime Analog and Digital Setpoints with options for time delays and custom alarm labels.
  - vii) Smart Over/Under Setpoints designed specifically for energy (WAGES) and power alarms based on historical average, standard deviation or maximum with options for time ranges, aggregation periods, multipliers and ability to compare specific time periods (Same Hour of Day and/or Same Day of Week).
  - viii) Communication Loss alarms with options for sensitivity and custom alarm labels.
  - ix) Data Log Status alarms with options for sensitivity and custom alarm labels.
  - x) Schedules interface for end users to configure when smart software alarms are active or not.

#### **PS3.13.8.4 Software – Data Analysis and visualization**

The Software Platform shall include an interactive, web-based Dashboard application that provides auto-updating dashboard views that may contain not only energy and power data but water, air, gas, electric, and steam (WAGES), historical data trends, power quality performance data, images, and content from any accessible URL address.

Users shall be able to create, modify, view, and share their dashboards (including graphics, labels, scaling, measurements, date ranges, etc.) using only a browser and without the need for a separate software application to design, create, modify or publish dashboards.

The Software Platform shall support kiosk slideshow displays by assigning individual dashboards to slideshows to run in unattended mode, scrolling through designated dashboards at a configurable time interval.

Any number of kiosk slideshow displays may be created and configured to run independently on any computer using a browser.

The Dashboard application shall provide a library of standard graphical objects (gadgets) including Bar, Pie, Trend, Real Time and Web Portal.

The Dashboard application shall provide a library of specialized energy usage graphical objects (gadgets) including Period Over Period Comparison, Pareto Charts, Heat Map / Carpet Plot and Sankey Diagrams.

The Dashboard application shall provide a library of specialized Power Quality graphical objects (gadgets) including PQ Downtime Impact, PQ Rating, PQ Incident Breakdown and Location.

The Software Platform shall provide an interactive, web-enabled Reports application that allows users to generate, modify, save and manage reports based on pre-formatted report templates (up to 64 templates) that are designed to support the following:

- a) Energy Cost Allocation and Bill Verification.
- b) Energy Usage, Modelling and Performance Verification.
- c) Power Quality Performance and Compliance (EN50160 and IEEE 519).
- d) System Average RMS Variation Frequency Index (SARFI)
- e) Electrical Equipment Operation and Performance (Breakers, UPSs, Generators).

The reporting tool shall support automatic distribution (via email or shared folder) on a schedule basis or based on event or manual export using the following output formats: .csv, .xlsx, .pdf, .tiff, .html, .xml.

### **PS3.18.8.5 Software – Technical Infrastructure**

The Software Platform shall be able to be installed on a physical computer or virtual machine and shall support a variety of Windows operating systems including Server and non-Server class Windows operating systems.

The Software Platform shall support a variety of SQL Server Editions including Enterprise, Standard and Express Editions.

The Software Platform shall only require SQL Server Database Engine Services and Basic Management Tools and not require the installation of any other additional SQL components such as Analysis Services or Reporting Services.

1. The Software Platform shall support the following cybersecurity features:
  - a) Encrypt the transmission of data between the Software Platform Server and its Web Clients using Transport Layer Security (TLS) version 1.2.
  - b) Establish secure authentication between the Software Platform Server and its Web Clients using Certification Authority (CA) certificates.

- c) Encryption and hashing of system credentials using AES256 and SHA-512 respectively.
  - d) Capable of installing into a Federal Information Processing Standard (FIPS) compliant environment.
  - e) Application Whitelisting.
2. The Software platform shall support the integration of Windows Active Directory for users and groups from across multiple domains to facilitate the following:
- a) Login to the Software Platform using Windows credentials.
  - b) Enforce password policies via Windows (complexity and expiration).
  - c) Role-Based Access Control (RBAC).
3. The Software Platform shall intelligently and automatically acquire data from devices, including onboard events, trends and waveforms from natively supported device types:
- a) Without any need for software configuration or data upload scheduling.
  - b) Onboard, high-resolution timestamps (1ms) shall be retrieved without degradation or modification even for devices that support clock synchronization via GPS, IRIG-B, NTP or PTP (Precision Time Protocol).
4. The Software Platform shall support logical device definitions based on inputs/outputs or channels on devices that represent a downstream device with the following features:
- a) Software user interface for device and measurement mapping.
  - b) Bulk-import capability to create large numbers of logical devices without manual single-device configuration.
5. The Software Platform shall support real-time and historical data aggregation within defined hierarchy views (e.g. Tenants/Racks/Circuits, PDUs/RPPs/Panels, Buildings/Floors/Rooms, or any user defined view) with the following capabilities:
- a) Web-based, end user interface.
  - b) Automatic and intelligent data aggregation across all nodes in the hierarchy for data visualization in Dashboards, Trends and Reports.
  - c) Creation of virtual devices to enable applications such as net metering, common area allocation and apportionment.
  - d) Update node names and associated time ranges in the hierarchy to properly reflect and accurately report on facility changes (e.g. tenant move in – move out).
  - e) Bulk-import capability to create and edit large hierarchies without manual per-device setup.
6. The Software Platform shall support OPC DA Server 2.01 with the following capabilities:
- a) Provide default OPC Server tag mappings for all natively supported device types without the need to select, configure, or program the mapping of device registers to OPC tags.
  - b) Provide a flexible means to add or change OPC mappings and shall support the ability to add custom measurements.
  - c) The Software Platform shall support OPC DA Client 2.01 and come with a built in OPC Test Client.
7. The Software Platform shall support device-level Modbus integration with the following capabilities:

- a) Modbus master to read/write registers in Modbus devices for monitoring and control applications.
  - b) Support for at least 70 Modbus data formats including:
    - i. 16bit Signed/Unsigned Integers (S16-21, S16-12, U16-21, U16-12, S16-1-15),
    - ii. 16bit Signed/Unsigned Array (U16-21-ARRAY U16-12-ARRAY),
    - iii. 32bit Signed/Unsigned Integers Big-Endian and Little-Endian (S32-4321, S32-1234, U32-4321, U32-1234),
    - iv. 64bit Signed/Unsigned Integers (S64-21-87, U64-21-87, S64-87-21, U64-87-21),
    - v. Signed/Unsigned Modulo10000 (S32-M10k-4321, S32-M10k-1234, U32-M10k-4321, U32-M10k-1234, S64-M10k-21-87, U64-M10k-21-87, S48-M10k-21-65, U48-M10k-21-65, S48-M10k-65-21, U48-M10k-65-21),
    - vi. Signed/Unsigned Modulo1000 (S64-M1K-87-21 U64-M1K-87-21),
    - vii. IEEE Float/Swapped Float (F32-4321, F32-1234, F64-87-21, F64-12-78),
    - viii. ASCII/ASCII Reverse,
    - ix. Packed Boolean/ Masked Boolean,
    - x. Inverted Masked Boolean,
    - xi. Binary Coded Decimal (BCD, Packed BCD),
    - xii. Formats for Power Factor (PF Nexus, PF32, PF\_ALT),
    - xiii. Formats for Date-Time (DateTime4\_UTC, DateTime4\_LOCAL, DateTime4, DateTime3\_UTC, DateTime3\_LOCAL, DateTime3, DateTime\_YMDhms\_UTC, DateTime\_YMDhms\_LOCAL, DateTime\_YMDhms, DateTime\_IEC870\_UTC, DateTime\_IEC870\_LOCAL, DateTime\_IEC870, DateTime3\_IEC870\_UTC, DateTime3\_IEC870\_LOCAL, DateTime3\_IEC870, DateTime3\_MDYhms\_UTC, DateTime3\_MDYhms\_LOCAL, DateTime3\_MDYhms, DateTime4\_MDYhms\_UTC, DateTime4\_MDYhms\_LOCAL, DateTime4\_MDYhms, DateTime2\_s2000, DateTime3\_s2000, DateTime4\_shmMDY, DateTime6\_smhDMY, DateTime7\_YMDhms, DateTime8\_MDYdownhmsc, DateTime6\_MDYhmsms, DateTime\_NSX2\_UTC, DateTime\_NSX2\_LOCAL, DateTime\_NSX3\_UTC, DateTime\_NSX3\_LOCAL).
8. The Software Platform shall have a single, end user software application specifically designed for integrating Modbus and OPC device types and shall have the following capabilities:
- a) Simple creation and management of Modbus and OPC device definitions (device drivers) and association of device graphic template screens.
  - b) Pre-defined, default measurement system (Common Data Model) for consistent mapping of Modbus registers and OPC tags to standard measurements.
9. The Software Platform shall support Web Services interoperability with the following capabilities:
10. The Software Platform shall remain online (including communications, logging, and alarming) and not require an operator to take the system offline during all system administration functions such as adding, modifying, or removing devices in the system; creating, modifying, or removing graphical diagrams, dashboards, tables, and reports; creating, modifying, or removing application logic programs in the application logic engine.
11. The Software Platform shall support offline software configuration management for efficient system deployments and upgrades with a dedicated user interface for creating, copying and deploying software configuration projects.
12. The Software Platform shall support internationalization and regional settings.
13. The Software Platform shall provide factory support for the following languages: Chinese (Simplified), Chinese (Traditional), English, French, German, Italian, Russian, Spanish, Polish, Czech, Portuguese, Swedish, Norwegian (Bokmål) and Turkish.
14. The Software Platform shall support the ability to change its default language at any time directly from the web client without the need for any additional installation or advanced software configuration.”

### PS3.13.8.6 Minimum System platform Requirements - Server

System:	Intel Core i7 11th Generation or better with 4 Cores (or equivalent).
RAM:	16 GB .
HDD:	512 GB SSD solid-state for operating system and software. Additional storage of 1TB SSD or more to be added for data storage including an external backup storage device.
Operating System:	Windows Server 2019 or 10.
Display:	HDMI 1920 x 1080, 24" or better.
.Net Framework:	4.8.
Network:	1 GB/s Full duplex.
Peripherals:	1 x Mouse.
Other:	USB ports.

If allowed by the Contractors data network the Contractor shall install one server for the route. The Contractor can also setup a vertical server.

### PS3.13.8.7 Minimum System platform Requirements – Operator Client

System:	Intel Core i7 11th Generation or better with 4 Cores with integrated graphic (or equivalent).
RAM:	8 GB.
HDD:	7200rpm, 1TB.
.Net Framework:	4.8.
Display:	HDMI 1920 x 1080, 24" or better.
Peripheral:	1 x Mouse, 2 x 24" screens, 1 x keyboard, sound with volume control, 1 x USB biometric access (Simply plug and scan), must be fast and reliable.
Network:	1 GB/s Full duplex.

The above hardware shall be shared used for the SCADA system as one server and operating station.

Add the following subclauses:

#### ***“PS4.10.7 Trench Types***

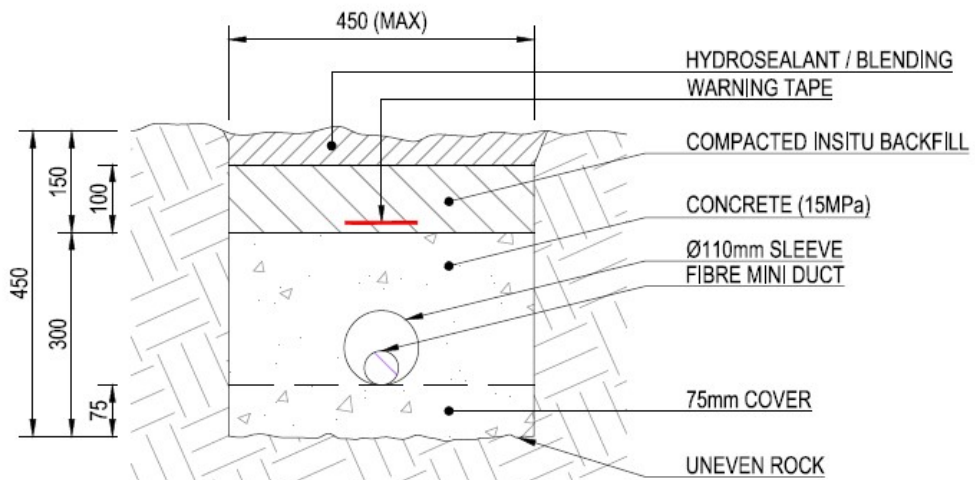
##### ***PS4.10.7.1 Types***

*The Contractor shall install Low Voltage (LV) electrical and communication infrastructure based on the following trench details Type A & D/E.*

*See LV Cable trench standard details included in C34 to Volume 4 drawing TD-E-P-3000-1-V1 & sleeve installation standard details TD-E-P3000-1-V1 LV Cable Trench & TD-E-P3001-1-V1 MV Cable Trench*

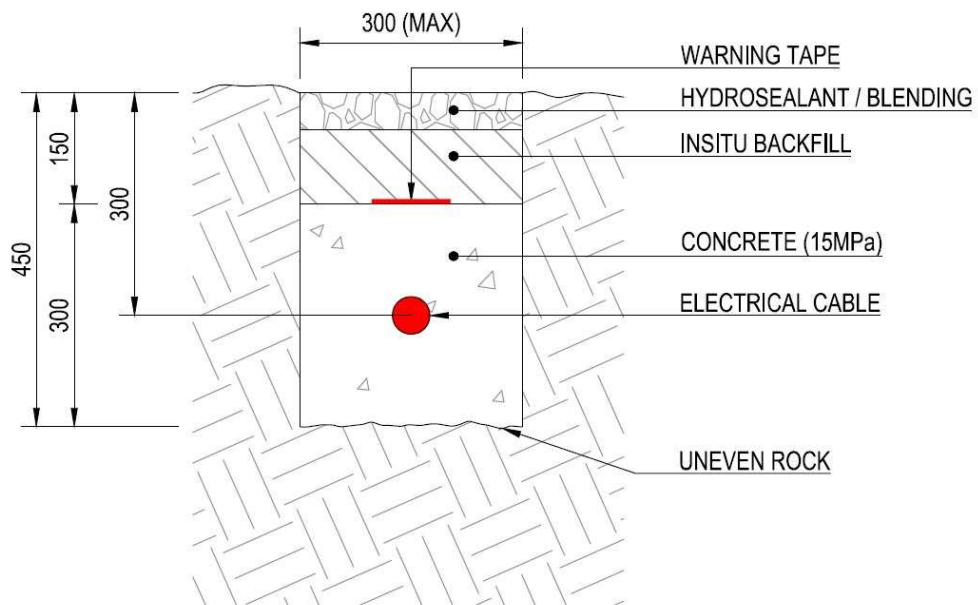
##### ***Trench A***

## TRENCH TYPE A1



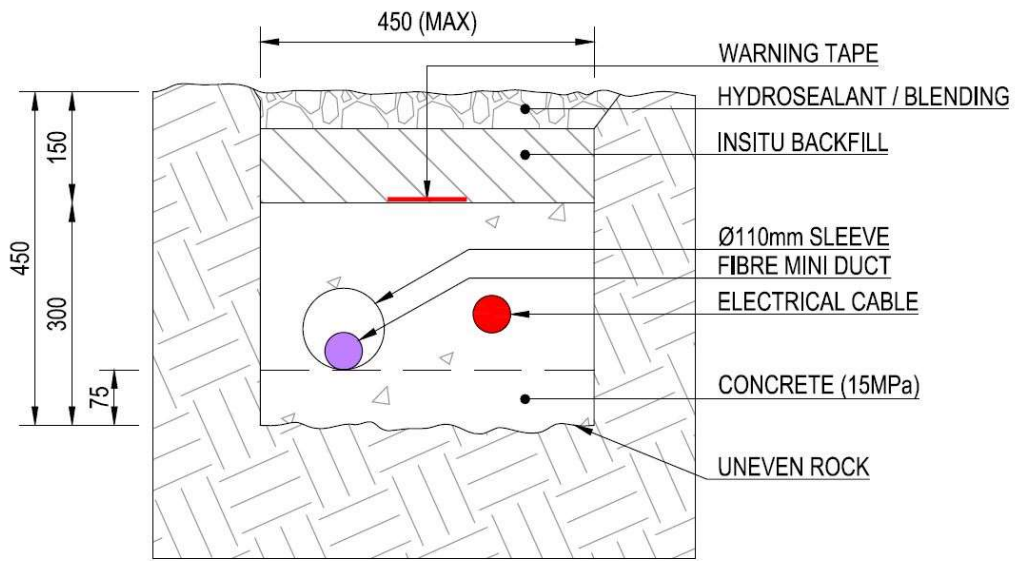
SCALE 1:10

## TRENCH TYPE A2



SCALE 1:10

# TRENCH TYPE A3

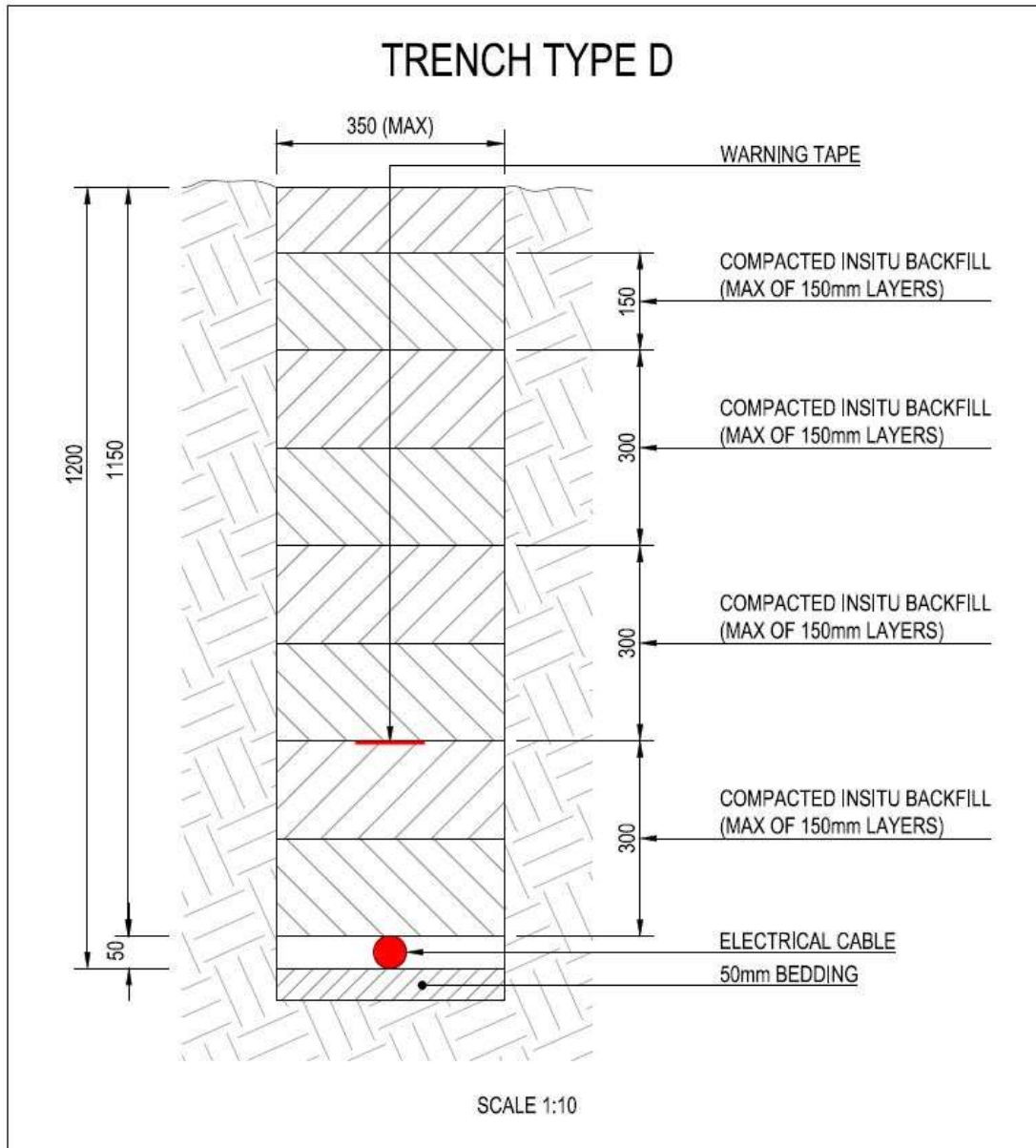


SCALE 1:10

**Trench B**  
Trench type B not used.

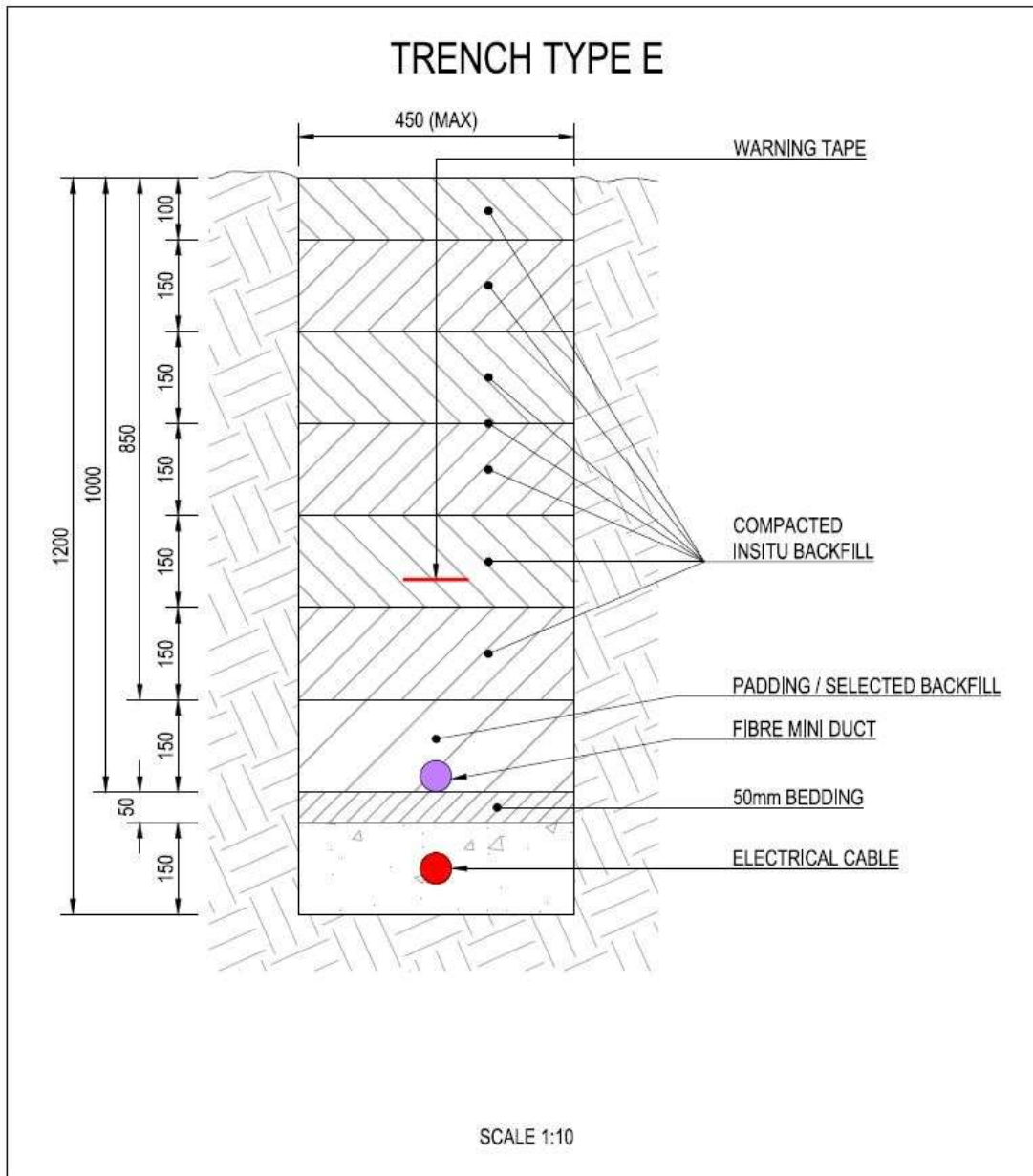
**Trench C**  
Trench type C not used.

Trench D





## Trench E



## PS9 Luminaires

### PS9.1 General

Add the following new Sub-clauses:

**“PS9.1.13** *The luminaires shall be manufactured by an ISO 9002 accredited company.”*

### PS9.4.1.1 General

Add the following new Sub-clauses:

**“PS9.4.1.1(e)** *All LED luminaires shall conform to LM-80 standards. Compliance testing certificate to be provided.”*

- “PS9.4.1.1(f) The luminaires shall be delivered completely assembled with housing, driver, photoelectric control unit, LED module and protector lens.”*
- “PS9.4.1.1(g) Luminaires shall be Class 1 of IEC 60598-1 and be of the totally enclosed type.”*
- “PS9.4.1.1(h) The luminaire output shall be provided as nominal flux at Tq of 25 °C.”*
- “PS9.4.1.1(i) The colour rendering index of the luminaires shall be seventy (70) (minimum).”*
- “PS9.4.1.1(j) The colour temperature of the luminaires shall be neutral white 4 00k.”*
- “PS9.4.1.1(k) The following information and conditions shall be met and the manufacturer shall supply test data that includes, but is not limited to, the following:*
- i. The LED light source(s) have been tested according to LM-80-08.*
  - ii. The LED drive current specified by the luminaire manufacturer is less than or equal to the drive current specified in the LM-80 test report.*
  - iii. The LED light source(s) manufacturer prescribes/indicates a temperature measurement point (Ts) on the light source(s).*
  - iv. The Ts is accessible to allow temporary attachment of a thermocouple for measurement of in-situ temperature. Access via a temporary hole in the housing, tightly resealed during testing with putty or other flexible sealant is allowable.*
  - v. For the hottest LED light source in the luminaire, the temperature measured at the Ts is less than or equal to the temperature specified in the LM-80 test report for the corresponding drive current.”*
- “PS9.4.1.1(l) Temperature sensors shall be fitted as protection devices to the luminaire, placed directly next to the LEDs. These shall not switch off the luminaire completely. Full details of how the luminaire manages its temperature through the use of sensors and the effect on lumen maintenance shall be supplied.”*
- “PS9.4.1.1(m) Lifespan estimation deterioration curves of LED to be submitted for various design currents, e.g. 350 mA, 500 mA, 700 mA and 1000mA”*
- “PS9.4.1.1(n) The assembly and testing of the LED luminaire shall be undertaken within an ISO 9001 certified factory, in South Africa.”*
- “PS9.4.1.1(o) All luminaires/lamps/LED modules shall bear one of the following approval marks:*
- i. SANS;*
  - ii. IEC;*
  - iii. ANSI;*
  - iv. CIE;*
  - v. ENERGY STAR; or*
  - vi. IESNA.”*
- “PS9.4.1.1 (p) The luminaire shall comply with the following standards:*
- i. EN 55015: 2006 and 2007- Limits and methods of radio disturbance characteristics of electrical lighting.*
  - ii. EN 61547:1995/a+1:2000-Equipment for general lighting purpose EMC immunity requirements.*
    - EN 61000-3-2:2006-Limitation of harmonic current emission.*
    - EN 61000-3-3:2008-Limitation of voltage fluctuation and flicker.*
  - iii. IEC 5502 “Information technology equipment. Radio disturbance characteristics.*
    - IEC 61000-4-5 “Electromagnetic compatibility (EMC) - Surge immunity test.*

- IEC 60598-1:2004 and -2-3: Type test. To be provided on request by the Employer.
- SANS 60529: IP rating test. To be provided on request by the Employer.
- SANS 475: Ambient temperature (Ta rating) test. To be provided on request by the Employer”

“PS9.4.1.1 (q) The luminaire shall be rated to operate at an ambient temperature of Ta -20°C to 35°C.”

“PS9.4.1.1 (r) Luminaire valid test certificates shall be available and be provided to the Employer’s Representative or Employer, when requested.”

“PS9.4.1.5 Luminaire driver.”

Add the following subclauses:

“PS9.4.1.5 (f) The LED driver shall be designed to operate large array of high-power LED’s through current controlled output. The driver shall be suitable for normal 220V-240V 50Hz mains supply. The LED driver shall have efficiency of at least 90%.”

“PS9.4.1.5 (g) The LED driver shall incorporate multiple control interfaces for dimming capability. It shall enable 1-10V DC interface dimming control. It shall also have a programmable feature to allow pre-programming of step dimming lighting levels based on the ON time.”

“PS9.4.1.5 (h) The LED driver shall fully conform to following specifications:

- a) EN61347-1 General and safety requirements.
- b) EN61347-2-13- Particular requirements for DC or AC supplied electronic control gear for LED modules.
- c) EN62384- DC or AC supplied electronic control gear for LED modules.”

“PS9.4.1.5 (i) Only luminaires with aluminium housing shall be accepted and shall be manufactured from grade LM 6 (EN1706 AC-44100) (or higher) aluminium alloy. The Contractor shall provide metallurgical report confirming the grade of aluminium of the aluminium housing as instructed by the ER.”

“PS9.4.1.5 (j) Fixing devices, junctions, lips and the like shall be designed to shed water. Pockets and ledges in which condensation may accumulate shall be avoided.”

“PS9.4.1.5 (k) LED luminaires will be incorporated with 10KA Class II surge protection and have applicable thermal protection devices applicable to the region of installation, such that should the ambient temperature of 35°C, the luminaire then either “switch-off” or lower its operating mode while remaining “switched-on.”

“PS9.4.1.5 (l) Small components (such as toggle, clips, bolts, screws, nuts, washers) shall be manufactured of stainless steel (grade 304 or better).”

“PS9.4.1.5 (m) Due attention shall be paid to the accessibility of parts and to other requirements necessary for efficient maintenance and cleaning.”

“PS9.4.1.5 (n) The luminaire should have a minimum colour rendering index 9Ra) of 70+/- 10 and a colour temperature of up to 5700k for maximum efficiency. The LED shall have colour consistency within 5 SDCM (standard deviation of colour matching) as defined by McAdam. The colour temperature variation of the LEDS should be restricted as per ANSIC78.377A with CCT variation limiting within 500K for nominal CCT of 4000K.”

“PS9.4.1.5 (o) The LED luminaire shall be designed for Lumen maintenance of LM80 or 80% at the end of useful life at ambient temperature of -20°C to 35°C. The luminaire shall have a controlled steady state lumen output such that the initial and end of useful life lumen output are nearly identical although the LED’s have degraded over time. The complete luminaire shall have a useful life of over 60 000 burning hours. The luminaire including the driver will include a warranty of ten (10) years against manufacturing defects.”

“PS9.4.1.5 (p) The Contractor shall provide road area lighting LED luminaires that are Lighting Management System (LMS) ready. The Luminaires shall be supplied with a standard 7 pin NEMA

Socket. The Contractor shall supply the luminaires with a standard NEMA 7 pin dummy links should the Employer decide not to implement the LMS System. The luminaires shall be functional as a standard luminaire with the dummy link.”

“PS9.4.1.5 (q) The Contractor shall provide LED luminaires to replace the following old HID/HPS and fluorescent luminaires based on a detailed lighting design by a Professional Lighting Designer/Company. The list below allows for the replacement of area, road, canopy and building luminaires through a Prov. Sum and line items in the Cost Matrix:

TYPE	PAYMENT ITEM	LUMINAIRE TO BE REPLACED WITH LED EQUIVALENT
<b>Road and Area Luminaires with LMS</b>		
D1	Prov. Sum	Toll Plaza lighting design: Road and area lighting.
D2	Prov. Sum	Toll Plaza lighting design: Lane canopy area, including toll booths.
D3	Prov. Sum	Toll Plaza lighting design: Per building, i.e. control building, plant building.
<b>Road and Area Lighting Luminaires</b>		
AL 1	Prov. Sum	250W HPS Flood/area lighting.
AL 2	Prov. Sum	400W HPS Flood/area lighting.
LMS 1	Prov. Sum	Add LMS Controller LUCO P7 CM to be supplied with new LED luminaires.
<b>Canopy and Booth Luminaires</b>		
AL 3	Prov. Sum	250W HPS Bulkhead/canopy.
AL 4	Prov. Sum	400W HPS Bulkhead/canopy.
<b>Building new LED Luminaires, Gosforth mainline, West ramps, Dalpark mainline and Denne Road Toll plazas.</b>		
LR 1	Prov. Sum	3 x 18W fluorescent cool white recessed mounted with LBR diffuser. (current lamp 10W SMD LED lamps).
LR 2	Prov. Sum	2 x 36W fluorescent cool white surface mounted moisture proof. (current lamp Philips Applo LED 24W 6500k or 20W SMD LED lamps).
<b>Building new LED lamps for Luminaires, Ermelo, Trichardtsfontein &amp; Leandra Toll Plazas.</b>		
LA 1	Prov. Sum	Luminaire Philips TBS, TBS/E, TCS, TCS/E TPS, TPS/E From drawing 232040 Leandra mainline 2 x 54W fluorescent recessed or surface mounted light fittings. (current lamp Philips TL5-HO 58W/840, 4500lm).
LB 1	Prov. Sum	Rewired Philips EFIX luminaires to fit direct mains LED high efficiency lamps. The luminaires shall also be relocated to work areas to provide compliance illumination in terms of the OHS Act.
LMS1	Prov. Sum	Supply and install a Passive Infrared (PIR) occupancy sensor to control area/room/office/booth as instructed by the Employer’s Representative.

“PS9.4.1.5 (r) The Contractor shall use the sample table below, updated with the relevant information, as part of the Contractors lighting tender when triggered by the Employer as part of the returnable information on the proposed new LED luminaires through a Prov. Sum process allowed for in the Cost Matrix:

<b>Canopy, Road and Area lighting Information Form</b>			
Ref No	Technical Details	Requirements	Contractors Submission
1	Name of the LED luminaire manufacturer		
2	Place of manufacture, not assembly, of components as per subclause PS9.4.3.10	South Africa	
3	Assembly and testing of entire luminaire	In an ISO 9001 certified factory in South Africa	
4	Type of luminaire technology	LED	
5	What is the nominal flux at Tq of 35° C?		
6	Luminaire installation inclination angle	15°	

**Canopy, Road and Area lighting Information Form**

<b>Ref No</b>	<b>Technical Details</b>	<b>Requirements</b>	<b>Contractors Submission</b>	
7	Product to replace road and area luminaire			
7.1	Luminaire 1	250Watt HPS/T, road luminaire		
7.2	Luminaire 2	400Watt HPS/T, road luminaire		
8	Rated wattage and luminance of the equivalent replacement luminaire		Proposed equivalent LED luminaire	
8.1	Luminaire 1	250Watt, 27 000lm HPS/T	W	lm
8.2	Luminaire 2	400Watt, 27 000lm HPS/T	W	lm
9	Class and type of luminaire	Class 1 of IEC 60598-1 and totally enclosed type		
10	Colour temperature	4 000 K (neutral white)	K	
11	Luminaire efficacy		lm/W	
11.1	Luminaire efficacy	lm/W(8.1)      lm/W(8.2)		
12	Colour rendering index	70 (minimum)		
13	Lighting design to comply with	SABS ARP 035		
14	Minimum energy saving by LED luminaire compared to 250Watt HPS streetlight luminaire	35%	%	
15	Minimum energy saving by LED luminaire compared to 400Watt HPS streetlight luminaire	35%	%	
16	Lumen Depreciation (max.) of the LED luminaire when installed for 60 000 hours, at T <sub>a</sub> = 35°C	20% of initial lumens		
	Degree of protection to SANS 60529			
17	a) LED Module compartment	minimum IP 66		
	b) Driver or power supply compartment	minimum IP 66		
18	The grade of aluminium for LED luminaires shall be:	EN1706 AC-44300DF, (or higher)		
19	Does the luminaire have a heat sink?	Yes	Yes/No	
20	Standard to which hot-dip galvanising all ferrous components comply with	SANS 121		
21	Steel grade for toggle clips, bolts, screws, nuts and washers	Grade 304 or better		
22	Intelligent Lighting Management System (LMS)			
22.1	Hardware			
22.1	Software			

<b>Canopy, Road and Area lighting Information Form</b>			
<b>Ref No</b>	<b>Technical Details</b>	<b>Requirements</b>	<b>Contractors Submission</b>
23	<i>LMS comply as specify in terms of subclause PS9.19.6</i>	Yes	Yes/No

Delete this Clause and replace with the following:

**“PS9.4.2 IP Rating.”**

“PS9.4.2.1 *The luminaires shall have minimum rating of IP 66 in accordance with SANS 60529 for both the driver and LED module compartments, when normally mounted as per SANS 475.*”

Delete this Clause and replace with the following:

**“PS9.4.4 Construction of Luminaires.”**

“PS9.4.4.1 *The housing shall be robustly constructed, weatherproof, hail proof, insect proof, corrosion proof, ultra-violet light resistant and vandal resistant. Luminaires shall be suitable for operation at an ambient temperature, Ta, of 35°C. Fixing devices, junctions, lips and the like shall be designed to shed water. Pockets and ledges in which condensation may accumulate shall be avoided.*”

“PS9.4.4.2 *The luminaires shall contain a heat sink with no fans, pumps or liquids, and the design of the heat sink shall prevent the accumulation of dirt and nesting of insects or ants, thus ensuring effective heat dissipation. Heat from the LED source should take the shortest path to the exterior by direct conduction or any other reliable form of cooling that will not compromise the useful life of the LEDs. The cooling rib height to width ratio may not exceed 0.7. Additionally, the top surface shall be curved in shape.*”

“PS9.4.4.3 *Luminaires shall have separate LED, LED driver and spigot compartments, and shall have a minimum degree of protection of IP66 for the LED and driver compartments.*”

“PS9.4.4.4 *The luminaires shall have die cast aluminium housings and shall be of grade EN1706 AC44300, aluminium alloy.*”

“PS9.4.4.5 *The luminaires shall be supplied in raw aluminium finish. i.e. The finish shall be unpainted.*”

“PS9.4.4.5 *Ferrous components shall be hot-dip galvanised and shall withstand the test specified in the current edition of SANS 121 for heavy duty application.*”

“PS9.4.4.6 *Small components (such as toggle clips, bolts, screws, nuts, washers) shall be manufactured of stainless steel (grade 304 or better).*”

“PS9.4.4.7 *Due attention shall be paid to the accessibility of parts and to other requirements necessary for efficient maintenance and cleaning, where required. If screws are used to secure covers, they shall be held captive when opened.*”

“PS9.4.4.8 *The replacement (upgrading and service) of the LED unit and the driver/power supply shall be possible without removing the whole luminaire but by means of replacing only the optical/gear compartment by means of a hinging mechanism, or other such simple method which does not require tools, to allow integration of future technological development of LEDs and power supply.*”

“PS9.4.4.9 *The driver shall be mounted internally and be replaceable with the aid of commonly available hand tools.*”

“PS9.4.4.10 *Various components such as the aluminium housings, glass protectors, silicon gaskets and stainless-steel latches/clips shall be manufactured in South Africa, in line with the government directive of local manufacturing support.*”

Add the following subclauses:

**“PS9.4.5 Mounting.”**

- “PS9.4.5.1 Customers Street light arms are inclined at 150 to the horizontal. If the luminaire offered is designed to be installed at 00 it shall have a mechanism to allow adjustment back to 00. The luminaire shall be clearly marked with angles of inclination, and full details of how to adjust the angle of inclination shall be supplied. The angle of inclination must be clearly stated as this affects design data.”
- “PS9.4.5.2 Luminaire entries shall be of a material that is inherently corrosion resistant and compatible with the galvanised mild steel supporting spigot to such a degree that deterioration by electrolytic action will not occur.”
- “PS9.4.5.3 Spigot entries shall be designed to fit easily over the bracket pipe and shall be truly parallel to the fitting axis and shall comply with Table 1 of SANS 1088:1990 as follows:
- a. For Type 2 luminaires (side entry): Nominal size - 42 mm.”
- “PS9.4.5.4 The luminaire shall be secured on its spigot by at least two stainless steel M8 hexagonal-head screws as specified in ISO 4762, which are screwed into stainless steel sockets or any other methods to prevent cathodic corrosion between stainless steel and aluminium. The construction of the housing shall be such that cracking cannot occur during the process of fixing the luminaire to the pole or bracket. The attachment of the luminaire should be designed to withstand wind speeds of up to 150 km/h on the projected surface of the luminaire without due deflection.”

Add the following subclauses:

**“PS9.4.6 Protector”**

- “PS9.4.6.1 The protector, for the LED compartment, shall be high-impact, toughened, clear flat glass. High-impact polycarbonate can be used is approved by the Employer.”
- “PS9.4.6.2 A protector, when fitted, shall form a seal completely preventing the entry of moisture, dust and insects into the LED compartment. A one-piece gasket of silicon sponge material shall be used for this purpose. Gaskets shall not deteriorate or suffer permanent deformation due to light, heat or compression, to which they will be exposed in practice, during the life of the luminaire.”
- “PS9.4.6.3 The gasket shall be fitted into a groove in the housing and shall be seated in a manner ensuring the integrity of the IP66 rating and shall not work loose during maintenance of the luminaire.”

Add the following subclauses:

**“PS9.4.7 Power supply or driver specifications.”**

- “PS9.4.7.1 LED module(s) drivers shall be housed fully within the body of the luminaire and be suitable for operation with the specified rating of luminaire.”
- “PS9.4.7.2 The output frequency of the drivers shall be 100 Hz or greater, to avoid visible flicker.”
- “PS9.4.7.3 The harmonic distortion levels of the LED module driver(s) shall comply with the limits given in SANS 61000-3-2.”
- “PS9.4.7.4 The LED module driver(s) shall operate at a power factor of 0,95 or greater, and the harmonic distortion levels shall be limited so as to not cause interference on the electrical network.”
- “PS9.4.7.5 The power supply (or driver) compartment shall be so designed that there is sufficient space to permit repairs, replacement of components and reassembly without difficulty and without the removal of the luminaire from its mounting.”
- “PS9.4.7.6 The power supply or driver shall be able to withstand surges from up to 20kV/20kA by means of an external inline fused surge protection device which can be mounted onto a NEMA socket.

*This surge protection shall be easily replaceable and it shall fail in an open circuit mode to protect the luminaire from further surges.”*

“PS9.4.7.7 *The lifetime of the power supply or driver shall be 100 000hrs with 90% survival over the lifetime. The power supply (driver) shall incorporate a thermal switch to prevent exceeding the case temperature for maximum lifetime of equipment.”*

Add the following subclauses:

**“PS9.4.8 Earthing.”**

“PS9.4.8.1 *The luminaire shall be earthed in accordance with Clause 13 of the Electrical Machinery Regulations of the OHSACT (Act 85 of 1993). “*

“PS9.4.8.2 *Metal parts of luminaires which may become alive in the event of an insulation fault and which are not accessible when the luminaire is mounted but liable to come into contact with the supporting surface shall be permanently and reliably connected to an earthing terminal and shall withstand the test specified in IEC 60598-2-3.”*

“PS9.4.8.3 *Protection against electric shock shall be maintained for all methods and positions of installation in normal use. Protection shall also be maintained after removal of all parts which can be removed by hand, except those parts of lamp holders specified in subclause 8.2.1 of SABS 1464-Part 1:1991.”*

“PS9.4.8.4 *Earthing terminals shall comply with subclause 7.2 of IEC 60598-1. All parts of an earth terminal shall be made of brass or other corrosion resistant metal and the contact surfaces shall be bare metal and not painted or varnished surfaces.”*

“PS9.4.8.5 *All earth connections shall be effected by means of suitable lugs appropriately made to avoid all possibility of electrolytic corrosion.”*

“PS9.4.8.6 *An earth connection shall be provided in all instances, even if the luminaire is fully insulated and even if all conductive parts, which could become alive in the event of an insulation fault, are not accessible. This is to facilitate future wiring should the luminaire be replaced by a unit which requires an earth connection.”*

Add the following subclauses:

**“PS9.4.9 Wiring”**

“PS9.4.9.1 *The internal wiring of the luminaires shall be flexible and suitably insulated to withstand the voltage and the temperature encountered in service. Wiring colours shall be live-brown (or red), neutral-blue (or black) and earth-green/yellow.”*

“PS9.4.9.2 *Wiring to the LED module compartment shall be suitably grommeted, ensuring a perfect seal between compartments and protection of the wiring.”*

“PS9.4.9.3 *The supply terminals shall accept 4mm<sup>2</sup> wires and be easily accessible. No part of the cover shall damage the supply wires when closed.”*

“PS9.4.9.4 *The electrical power supply shall automatically disconnect when the luminaire is opened, typically through the use of a blade/knife switch, allowing safe access to the inner components.”*

Add the following subclauses:

**“PS9.4.10 Design”**

“PS9.4.10.1 *The performance of LED luminaires shall be verified by designing the lighting of the appropriate road as per SANS ARP 035. The required design criteria values are shown in Annexure to Bid Form, Annexure B1 and B2. The actual design data and results, and encrypted luminaire data files in an electronic format suitable for use with Relux, Dialux, etc. Lighting Design Software shall be stored on a CD and submitted with the bid documents. Design spacing be in 0,5 m increments.”*



- “PS9.4.10.2 Luminaires shall at minimum consume 35% less energy (input power) when compared to the luminaire they are designed to replace.”*
- “PS9.4.10.3 The luminaires shall deliver 80% of the initial lumens, when installed for a minimum of 60 000 hours. The Contractor shall provide a lumen depreciation graph by means of the IES LM 80-08 data of the LEDs.”*
- “PS9.4.10.4 The LED light source test data shall provide the expected data for at least 10 000hrs.”*
- “PS9.4.10.5 The following information and conditions shall be met, and the Contractor shall supply test data that includes, but is not limited to, the following:*
- The LED light source(s) have been tested according to LM-80-08.*
  - The LED drive current specified by the luminaire manufacturer is less than or equal to the drive current specified in the LM-80 test report.*
  - The LED light source(s) manufacturer prescribes/indicates a temperature measurement point (Ts) on the light source(s).*
  - The Ts is accessible to allow temporary attachment of a thermocouple for measurement of in-situ temperature. Access via a temporary hole in the housing, tightly resealed during testing with putty or other flexible sealant is allowable.*
  - For the hottest LED light source in the luminaire, the temperature measured at the Ts is less than or equal to the temperature specified in the LM-80 test report for the corresponding drive current.”*
- “PS9.4.10.6 Temperature sensors shall be fitted as protection devices to the luminaire, placed directly next to the LEDs. These shall not switch off the luminaire completely. Full details of how the luminaire manages its temperature through the use of sensors and the effect on lumen maintenance shall be supplied.”*
- “PS9.4.10.7 Lifespan estimation deterioration curves of LED to be submitted for various design currents, e.g. 350 mA, 500 mA, 700 mA and 1000mA.”*
- “PS9.4.10.8 The assembly and testing of the LED luminaire shall be undertaken within an ISO 9001 certified factory, in South Africa.”*

Add the following subclauses:

***“PS9.4.11 LED Luminaire design documentation”***

- “PS9.4.11.1 Full technical and descriptive details, relating to all the items offered in this enquiry (except where mentioned), shall be submitted so the offer can be fully evaluated. This shall include:”*
- “PS9.4.11.2 Actual design data and results, and encrypted luminaire data files in an electronic format.”*
- “PS9.4.11.3 Name of LED luminaire;”*
- “PS9.4.11.4 The method of manufacture of the LED luminaire;”*
- “PS9.4.11.5 The dimension and weight of the LED luminaire;”*
- “PS9.4.11.6 The self-cleaning properties of the luminaire;”*
- “PS9.4.11.7 The cooling mechanism of the luminaire to adequately dissipate heat;”*
- “PS9.4.11.8 Country of design, manufacture and assembly;”*
- “PS9.4.11.9 Standards to which the luminaire conforms to (National and International); “*
- “PS9.4.11.10 Specify life span of LED Module driver(s) or Power Supply; and “*
- “PS9.4.11.11 Confirmation form mast manufacturer that the existing masts will be able to carry the load of the new luminaire design.”*

*“PS9.4.11.12 Certified data from a recognised test authority regarding degradation of the material and depreciation of light transmission under working conditions, i.e. temperature and ultra-violet irradiation for the following:*

- a) material of the body;*
- b) material of the protector; and*
- c) material of the optic lenses.”*

*“PS9.4.11.13 The performance test reports which include the following:*

- a) Photometric requirements;*
- b) Static wind force test;*
- c) External and internal wiring;*
- d) Protection against electric shock;*
- e) Thermal tests;*
- f) Power factor;*
- g) Resistance to corrosion;*
- h) Insulation resistance and electric strength;*
- i) Resistance to heat, fire and tracking; and*
- j) Accelerated ageing tests.”*

Delete this Clause and replace with the following:

#### ***“PS9.6 Lighting Management System (LMS)***

*The latest LED luminaire technology provides good energy avoidance to the Employer. However, the LED technology can further give the Employer more energy avoidance benefits and still comply with the required Standards and Employer’s specification by adding an LMS to the installation.*

*The latest LMS technology is a unique combination of future-oriented hardware and a web interface that is easy in any way to operate and setup.*

*The Contractor can reduce the Employer energy bills, manage expenses more efficiently, improve maintenance, improve asset management, and provide increased safety with enhanced lighting to the road user.*

*The LMS system shall be supplied with and open protocol standards to make it easy to connect data networks. The LMS system shall be managed by any device with wireless interconnectivity by use of the most common protocols. Low level RF communication in a mesh topology.”*

#### ***“PS9.6.1 Lighting Management System (LMS) - Specifications***

*The Luminaire Controller shall be a smart control module that monitors and controls LED luminaires. It shall be designed for easy installation and plug and play commissioning.*

*Twist and lock the luminaire controller onto the 5 or 7 pin NEMA socket and the system is fully operational.*

*The Luminaire Controller’s auto-connectivity and registration feature shall use the public local mobile communications network to communicate instantly via secure encryption with the LMS. No segment controllers or gateway infrastructure shall be required. They shall operate on all levels in secure zones using password-protected access and/or encrypted communication.*

*A built-in GPS shall accurately locate the luminaire geographical position (+/- 2 m) which removes the need for the commissioning engineer to manually record the position of each luminaire. It shall also detect location changes e.g. following maintenance.*

*The Luminaire Controller shall incorporate sensor power supply and input that is compatible with a wide range of presence or traffic detectors to adjust the light levels on demand. This shall be PIR or RADAR with a normally OPEN inputs, 12V DC and maximum 2mA power supply.*

*The Luminaire Controller shall even share the event information through the RF mesh net and shall also be able to respond by receiving detection information via the local RF mesh net, using geolocation and electrical configuration.*

*It shall have an ID reader which shall read out the asset information stored in the luminaire RFID tag for further use in the LMS WEBUI asset support information application.*

*The Luminaire Controller shall replace a standard photocell unit using a standard 5 or 7 pin NEMA socket with two photocell chips to control day light switching. It shall control the driver by controlling switching the power ON or OFF to the luminaire and by using dimming through either a DALI or 1-10V dimming interface which can dim the light by pre-configured dim profiles.*

*It shall have a built-in utility Lighting control meter grade meter which would offer effective metering accuracy (< 1% for the complete dimming range).*

*Communication between the luminaires, for exchanging sensor information, shall be done through a fast IPv6 based self-forming RF mesh tropology using ZIGBEE, where any one controller in the mesh shall act as a router MASTER module for the neighbouring controllers through the Central Management System.*

*The Tele management Smart Control system shall allow for every luminaire to be monitored and controlled individually and shall allow the following:*

*Metering and reporting the current energy consumption:*

- a) Average RMS input voltage (Volts) when switched on*
- b) Average RMS input current (Amps) when switched on*
- c) Average true input power (Watts) when switched on*
- d) Average input power factor when switched on*

*Shall control dimming profiles for customised illumination levels and shall have the best possible energy savings. Constant Lumen Output™ (CLO) allows every luminaire to be controlled so that its output light level remains stable over time. Depending on the installation settings, energy savings around 10% can be achieved. VPO (Virtual Power Output) allows you to eliminate the energy consumption caused by over-dimensioning. SDLO (Selective Dynamic Lumen Output) allows you to configure the level of light to suit the traffic density.*

- Shall have Real-time monitoring and manual control when needed. Time and network dependable (24h)*
- Shall be able to Record the consumption values in a database for comprehensive analysis. Two-week data*
- Shall be able to have automatic configured scheduled reporting of all energy usage and errors in the event of faults (by email/SMS). The same as alarm.*
- Shall have creation of user profiles for allowing specific user rights based on permissions.*
- Shall enhance energy savings by means of Constant Lumen Output (8%-10% and Selective Dynamic Lumen Output (30%-40%).*
- Shall allow creation configuration of alerts/alarms in the event of system errors (Power failure, Loss of communication, etc.) which also occurs during cable theft. This shall be via email or SMS.*
- User shall have the ability to access the system remotely from anywhere using a smart device with internet connectivity.*
- Each controller shall be classified in a geographical hierarchy according to position.*
- The hierarchy shall consist of the following levels: Country, City, District, Street and device.*
- The LMS shall allow for control integration of via 3rd party applications via API (Application Programming Interface) protocols.*
- Up to 10 (or more) dimming profiles shall be created and assigned. Each profile shall be separated into weekdays and the weekend and the user shall be able to select which days of the week fall into which category. The dimming profile shall be able to be configured individually and can create any number of exceptions for each dimming profile.*
- The user shall have the ability to create dimming profiles for special days in advance.*

- Specific parameters shall be assigned to individual luminaires such as power limits (used for alerts), design life, warm up time, etc.
- Historical data shall be viewed on the system which must save data for 12 months.
- The LMS shall be an auto-commissioning management system, which first uses GSM technology to locate itself and thereafter builds clusters between each node and defines master nodes to minimise data consumption vis the GSM.
- The LMS shall use a self-repairing IEEE 802.15.4 6LoWPAN Mesh for communication between the Luminaire Controllers. This means that if a Luminaire Controller were to fail due to loss of power then the system will find a new path to communicate between the remaining Luminaire Controllers.

In the event of a loss of communication, data shall be stored locally on the individual Luminaire Controller and shall be uploaded to the server as soon as another master node is selected. Operating and consumption data are stored in the cloud.

- In the event of communication failure, the Luminaire Controller shall continue to operate and dim the luminaire based on the last communicated settings stored on the Luminaire Controller and the time stamp saved on the Luminaire Controller.
- In case of a disrupted communication, the Luminaire Controller shall revert to dusk/dawn switching based on ambient light conditions in real-time or based on an astro-clock setting.
- Alarms and alerts shall be set up which will only be triggered once certain conditions have been met, e.g.: 3 Luminaire Controllers are missing in the system. The LMS shall then be able to alert specific personnel via SMS or email if required.
- The Central Management System shall be capable of detecting and reporting cable theft through an algorithm that identifies when the following conditions exist:
  - A user-defined number of controllers report a loss of power,
  - The loss of power occurs within a user-defined time frame,
  - The controllers are physically located consecutively along a road.”

#### “PS9.6.2 Lighting Management System (LMS) - Security

Security Protocols	
Access to the server WEBUI	Access with pre-configured username and password.
User rights	Each user can only access the permissions, which have been granted.
User/server connection	The server operates using the https protocol, which is also used for online banking, for example.
Server/ LuCo Controller connection	Secured connection (VPN tunnel).
Luminaire Controller connection	Encrypted IEEE 802.15.4 THREAD 6LoWPAN communication (128-bit AES encryption).

#### “PS9.6.3 Lighting Management System (LMS) – Luminaire controller

The Luminaire Controller technical details shall comply with the following:

- Operating conditions: Ambient temperature (ta) -40° C to +65° C  
Relative humidity 10% to 90%
- Non-operating conditions: Ambient temperature -40° C to +80° C  
Relative humidity 5% to 90%
- Mains connection: Mains voltage 110-277VAC ± 10%  
Mains frequency 50/60 Hz ± 5%

- Maximum load current 5 A
  - Maximum power at 5A
  - 600VA@120V,
  - 1.2kVA@240V,
  - 1.38kVA@277V
- **Power consumption:** Stand-by wattage < 1.0W  
Operating wattage < 2.7W  
Integrated power meter accuracy 1% and better  
(Between 0% and 100% dimming)
- **Radio Frequency:** Protocol IPv6  
Frequency band 2.4 GHz (2400,0...2483,5 MHz)
- **Housing:** Material PC, UV stabilized  
Colour RAL 7042 translucent light grey  
Protection class IP 66
- **Output Interface:** DALI Compliant to IEC62386 part 101, 102, 201, 203, 207  
1-10VDC Compliant IEC60929 (Annex E)
- **GPS Capabilities:** Supports GPS system (L1C/A signals provided at 1575.42 MHz)  
Supports SBAS, Satellite Based Assist System  
Position accuracy up to 2.5m/8ft (with > 6 satellites).”

#### Standards and Legislation

- **Approvals:** R and TTE directive 1999/5/EC  
EMC directive 2004/108/EC  
LV directive 2006/95/EC  
RoHS directive 2002/95/EC
- **EMC:** EN 301 489-1 V1.9.2:2011-09  
EN 301 489-3 V1.6.1:2013-08  
EN 301 489-7 V1.3.1:2005-11  
EN 301 489-17 V2.2.1:2012-09  
EN 301 489-24 V1.5.1:2010-10  
FCC/IC part 15B, ICES-003 (ANSI/IEEE C63.4:2014)
- **Cellular:** EN 301 511 V9.0.2:2003-03  
EN 301 908-1 V7.1.1 2015-03  
FCC/IC RSS-132, Issue 3, January 2013  
FCC/IC RSS-133, Issue 6, January 2013  
FCC/IC RSS-139, Issue 3, July 2015  
FCC/IC RSS-247, Issue 1, May 2015  
FCC/IC 47 CFR Part 22 Subpart H  
FCC/IC 47 CFR Part 24 Subpart E  
FCC/IC 47 CFR Part 27 Subpart C
- **Radio:** EN 300 328 V1.9.1:2015-02  
EN 300 440-2 V1.4.1:2010-08  
FCC/IC 47 CFR Part 15 Subpart C §15.247;
- **GPS:** EN 300 330-2 V1.6.1:2015-03
- **RF-ID:** FCC/IC 47 CFR Part 15 Subpart C § 15.225  
FCC/IC RSS-210, Issue 8, December 2010 + Amendment 1, February 2015
- **Safety:** IEC 61347-1 :2008+A1:2011+A2:2013  
IEC 61347-2-11  
EN 60950-22:2006+AC:2008  
EN 60529:1991+A1:2000+AC:1993+A2:2013  
EN 62311:2008  
UL 773 (E359906)  
C22.2 No. 182.2-M1987  
CSA C22.2 No. 205-12  
FCC/IC 47 CFR Part 2 Subpart J §2.1091  
FCC/IC RSS-102, Issue 5, March 2015
- **Connector:** ANSI C136.41, ANSI C136.10

## PS10 PROVISION FOR TELEPHONE INSTALLATIONS

### PS10.3 Power Skirting

Add the following subclauses:

*“PS10.3.2 The Contractor shall provide new three (3) compartment powder coating power skirting complete with covers, end caps for 16A socket outlets. Configuration to be finalized on-site i.e., location and combination of normal, dedicated UPS or emergency sockets.”*

*“PS10.3.1 The Contractor shall provide SABS approved (SANS 164) 16A socket outlets as required for the specific room in standard or desiccated configuration as agreed on site with the Employer’s Representative.”*

## **PS11 EARTHING AND LIGHTNING PROTECTION**

Add the following new Sub-clauses:

### **“PS11.3.5 Specific works**

#### **PS11.3.5.1 Inspections and actions**

*The Contractor shall check and test, on a six monthly basis, all earthing and bonding and confirm that the Installation is sufficiently earthed as described in the specification. The Contractor shall repair the continuity of all bonding and earth continuity conductors as required.*

*The following minimum actions, but not limited to, are required:*

- a) *Soil resistivity test: The results shall be analysed to determine if the existing lightning protection is sufficient to protect the installation*
- b) *Confirm if the number of down conductors and earth rods are sufficient*
- c) *Confirm if spacing of down conductors and earth rods are as per specification*
- d) *Checking of condition, mounting and connection of lightning protection finials*
- e) *Confirm condition and connection of down conductors to earth rods and earth mat.*
- f) *Connections of earthing inspection points*
- g) *Service and repairs of earth test point boxes*
- h) *Thorough test of the complete installation including all earth electrodes, and earth resistance*

*The Contractor shall check and confirm that surge protection devices are installed as required and that all surge protection devices are of the correct type and are correctly installed and connected.*

*Any non-compliance or repairs should be reported to the engineer. Repair work to distribution boards shall be done by the toll operator’s own electrician as to not invalidate the CoC. The toll operator will issue a new CoC for repairs done to distribution boards.*

#### **PS11.3.5.2 Documentation and report**

*The Contractor shall do a proper survey and testing of the complete installation as set out in this specification. The contractor shall on completion of his survey, submit a comprehensive and detailed report of his findings and recommendations to the Employer’s Representative. The report shall include all test results taken on site. The report shall list in detail all the repairs required with the associated cost.*

*The Contractor shall on completion of the repairs re-test the complete installation and submit the results to the engineer. A compliance certificate shall be issued.*

*The Contractor shall provide an updated drawing of the earthing and lightning protection system. Two hard copies of minimum A3 size shall be provided as well as in electronic format in PDF and AutoCAD.”*

Add the following Sub-Clause:

### **“PS11.6 Repairs and upgrades**

*PS11.6.1 The Contractor shall allow for repair or upgrade work to the existing earthing system identified by the Contractor earthing specialist Subcontractor under item A-5206 to R100,000.00 and R50,000.00 excluding VAT from mainline and remote ramps Toll plazas, respectively, within the*

Contractors Electrical and mechanical monthly maintenance cost. The Contractor shall submit a WA for the works that exceed the allowed value with supporting documentation required by the Employer at the time of submission. The Contractor shall continue with the vital work under the allowed value based on the most to least critical as agreed with the Employer's Representative. The amounts can be combined should it be required.

The table below provides details of the amounts that the Contractor shall include in item A-5206:

<b>Earthing and lighting protection cost</b>	
<b>Toll Plaza</b>	<b>Allowance excl. VAT</b>
<i>Ermelo Mainline</i>	<i>R 100 000</i>
<i>Trichardtsfontein Mainline</i>	<i>R 100 000</i>
<i>Leandra Mainline</i>	<i>R 100 000</i>
<i>Leandra Ramp</i>	<i>R 50 000</i>
<i>Dalpark Mainline</i>	<i>R 100 000</i>
<i>Denne Road Ramp</i>	<i>R 50 000</i>
<i>Gosforth Mainline</i>	<i>R 100 000</i>
<i>Gosforth West Ramp</i>	<i>R 50 000</i>
<b>Total</b>	<b>R 650 000</b>

## **PS 14 STREET LIGHTING POLES**

### **PS14.6 Pole maintenance or damaged replacement**

Add the following Sub-Clause:

*PS14.6.1. The Contractor shall tender rates for the following asset replacements due to maintenance, damage or failure as approved by the Employer and instructed by the Employer's Representative. The Contractor shall be provided complete solution and no extra cost will be allowed."*

<b>ITEM</b>	<b>DESCRIPTION</b>
<i>A-P1B, P2B, P3B</i>	<i>Mast base for 10m, 15m &amp; 18m Scissor mast as per mast manufacturer, Dynamic Cone Penetration (DCP) test, concrete test certificate and Engineer sign-off required after installation.</i>
<i>A-P1, P2 &amp; P3</i>	<i>10m 15m &amp; 18m Scissor mast including switchgear, earthing, luminaire mounting bracket/spigot for 1 x LED luminaire. Allow for a LED luminaire of 13kg for 1m mast and 26kg for 15m and 18m masts with estimated dimensions of 400x900x150mm.</i>
<i>P4, P5 &amp; P6</i>	<i>8m, 10m &amp; 12m fixed anti-vandal pole including switchgear, earthing, luminaire mounting bracket/spigot for 1 x LED luminaire. (Allow for 13kg LED luminaire)</i>
<i>3</i>	<i>Allow for transport cost (rate per km) from the mast manufacturer to the Toll Plaza.</i>

## **PS15 LIGHTING MASTS**

### **PS15.8 Mast and pole structure maintenance**

Add the following subclauses:

- “PS15.8.1 The Contractor shall treat the existing oxidation and visible rust on the lighting masts structures and paint the masts with an approved galvanize or aluminium paint.
- PS15.8.2 The Contractor shall submit the coating system to treat and paint the mast structures to the Employer Representative for approval before the Contractor continues the maintenance work.
- PS15.8.3 The coating system shall comply with the following minimum requirements:

Surface Preparation

- The Contractor shall degrease the structure by removing oil, dirt, and general fallout.
- High-pressure washing shall be used with a water-solution solvent-based degreaser and cleaned with portable water at a rate of 1 : 10.
- The mast structure shall be rinsed with clean water.
- The Contractor shall use a 60-grid sandpaper to abrade the surface and dust cleaned by rinsing the structure with clean portable water. (the use of power tools is recommended).
- The structure shall then be allowed to dry and coat.

Coating system

- The Contractor shall use an Aluminium-filled epoxy mastic coating system.
- The application shall be applied by brush, airless spray, or conventional spray.
- Film thickness shall be wet 140µm and dry 125µm with two coats to a total dry film thickness of 250µm (Microns).
- No specific colour will be required, standard aluminium shall be used.
- Estimated coverage is 7.2m<sup>2</sup>/l at 125µm.

PS15.8.4 The Contractor shall use the preparation and coating system for painting the mast structure and for minor maintenance during the contract operations and maintenance period.”

**PS16 UNINTERRUPTED POWER SUPPLY UP TO 50kVA**

**PS16.3 Technical Requirements**

Delete these Sub-clauses and replace with the following:

**“PS16.3.1.1 Technology:**

*Modular UPS systems with a at least 3 x Plug and Play type hot swappable/hot plug power modules shall be provided. Two of the modules must be able to carry the required full load of the site with the third as “spare”. The load will be distributed through all three power modules equally when in full working condition.”*

*“PS16.3.1.3 Rectifier: Latest IGBT technology to be used or better”*

*“PS16.3.1.4 Low current distortion: Less than 5%”*

*“PS16.3.1.8 Efficiency: 94% full load (AC-AC)”*

Add the following new Sub-clauses:

*“PS16.3.1.15 Load Crest Factor: 3:1 Minimum (6:1 preferred)”*

*“PS16.3.1.16 Input current THDi <5%”*

*“PS16.3.1.17 Output voltage THDv <2% for linear load”*

*“PS16.3.1.18 Operating Temperature -10°C to +40°C”*

*“PS16.3.1.19 Humidity 95% max non-condensing”*

*“PS16.3.1.20 Communication Modbus TCP or RTU”*

**PS16.4 Nature of UPS Load**

Add the following Sub-Clause:

*“PS16.4.4 Volume 2 Book4a requires the installation of additional UPS systems for some Toll System components. The intension of these UPS systems is to provide the specific component with power during a power interruption and must be a well-integrated (DC to DC, DIN-UPS with battery backup) part of the component that is low powered (<350W max) and energy efficient (>94% at 50% of rated current). Larger UPS systems (>350W) that is not an integrated part of the*



component design will only be considered if an engineering solution is provided for the Employer's Representative approval that was designed and signed off by a professional registered electrical engineer. The engineering solution must take impact on the main UPS installation into consideration."

**PS17 AUTOMATIC DIESEL STANDBY GENERATOR UP TO 250KVA**

**PS17.1 Scope**

Add the following new Sub-Clause:

"PS17.1.2 The generator size shall be based on the Toll Plaza load profile before the installation of a Small-Scale Embedded Generator (SSEG) but shall take into consideration any energy efficiency upgrades."

"PS17.1.3 The generator must be rated for continues power due to the current high risk in power failures on a regular basis for longer time periods or continuous operation."

**PS17.10 Bulk Fuel Tank**

Add the following subclauses:

"PS17.10.21 The Contractor shall supply and install a new above ground bulk fuel tank at Leandra Remote Ramps Toll Plaza, with a diesel store capacity of +/-2000lts including stand, foundation and bund wall with diesel trap and all pipes and fittings, in accordance with SANS specifications and fire regulations." The installation shall include approval from the fire department to store hazardous chemicals.

"PS17.10.22 The Contractor shall submit a technical report and detail design on the complete tank design for the ER to approved."

"PS17.10.23 The location of the new tank will be agreed with the Employer's Representative on site.

"PS17.10.24 The Contractor shall use the typical bund wall drawing in Volume 4 (C29\_Typical Bulk Diesel Fuel Tank) for a new, approximately 2000L above ground diesel storage tank. The Contractor shall ensure the tank and bund wall construction complies with environmental requirements and SANS 10131 compliant for the installation of above-ground storage tanks for petroleum products and the fire regulation in design and location. The tank shall be durable, low maintenance and supplied with a minimum warranty or 24 months and manufactured with a double-walled cylinders."

**"PS17.32 Replace generator inspection report in V2B3 with the following:**

<b>GENERATOR SERVICE / INSPECTION REPORT</b>			
Date		Site Name	
<b>GENERATOR INFORMATION</b>			
Engine Model		Alternator Model	
Serial No.		Serial No.	
KVA Rating (Max)	kVA	KVA Rating (Nom)	kVA
Commission Date		Previous Service Date	

<b>CHECKS</b>	<b>* / ✓</b>	<b>ENGINE RUN CHECKS</b>	<b>* / ✓</b>
Air Inlet Inspection		Simulate Low Oil Pressure	
Air Filter and Vacuum Indicator		Simulate High Engine Temperature	
Oil Filter		Simulate Low Water Level	
Oil Leak		Simulate Low Fuel	
Oil Level		Simulate Over/Under Freq	
Fuel Filter – Prim/Sec		Simulate Over/Under Voltage	
Fuel Leak		Simulate Start Attempts (Cranking)	
Fuel Water Trap		Check Governor Function	
Fuel Hoses		Check Charging Alt	
Fuel Transfer Pump (bulk-day)		Check Coupling Noises	

CHECKS	* / ✓	ENGINE RUN CHECKS	* / ✓
Radiator/Heat Exchanger		....	
Fan Cowl		....	
Coolant level, colour and clarity		CONTROL PANEL CHECKS	* / ✓
Jacket Water Heater "ON"		Mains Failure Test	
JWH Hoses (Replace Annually)		Check Change Over Timing	sec
Fan Belt Tension/Condition		Check on Load Run Period	
Battery Condition		Check Cooling Delay Unit Shut Down	sec
Battery Electrolyte Level		Check Panel Selector (Auto)	
Water Pump Condition		Check Fan/Motor Isolators	
Turbo Charger Condition		....	
Crankcase Breather		RECORD	
Canopy/Plant Room Condition		Frequency	Hz
Fresh Air Circulation in Gen Room		Kilowatt	kW
		Oil Pressure	KPa/PSI
		Fuel Pressure	KPa/PSI
RECORD			
Battery Voltage Standby (With utility power charging)	V	Engine Temperature	°C
Battery Voltage Standby (No utility charging)	V	Day Tank Fuel Level	%
Charging Current (Utility)		....	
Charging Current (Engine Alternator)	A	Bulk Tank Fuel Level	%
Hour Meter	Hr	Fuel Type	
	R	W	B
Max Demand Amps	A	A	A
On Load Current	A	A	A
Voltage	V	V	V

**COMMENTS** \_\_\_\_\_

**SIGN-OFF**

NAME	DESIGNATION	ORGANISATION	ROLE	SIGNATURE
			Generator Specialist	
			Contractor	
			Employer's Representative	

**PS18 SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)**

Add the following Sub-Clause :

**"PS18.1.9 SCADA Implementation**

1. The current alarm annunciator panels on the route are hard wired manual systems. It is required of the Contractor to interface all alarms and functions of the annunciator panels with a SCADA system.
2. If the current UPS systems can accommodate modules that are capable of communicating with a SCADA system via Ethernet, RS or similar, the operator needs to implement such devices to interface it with the SCADA system in the control room.
3. Suppose the current generator controller is not capable of interfacing with the SCADA system in the control rooms. The operator shall replace the generator controller with suitable controllers or add a communication device to interface with the SCADA system.
4. The generator Automatic Mains Failure (AMF) controllers interface status is provided in the following table:

<b>Generator controller upgrade or addons to interface with SCADA</b>		
<b>TOLL PLAZAS</b>	<b>AMF controller</b>	<b>Upgrade Requirements</b>
<i>Ermelo Mainline Toll Plaza</i>	<i>DSE 4520 (4520 RT) (No communication). Also, SmartGen at change over.</i>	<i>Add DSE 892</i>
<i>Trichardtsfontein Mainline Toll Plaza</i>	<i>DSE 7310 MKII. Also, SmartGen at change over.</i>	<i>No. RS485 available</i>
<i>Leandra Mainline Toll Plaza</i>	<i>MICS Nexys</i>	<i>Yes. Replace controller</i>
<i>Leandra Ramp Toll Plaza</i>	<i>MICS Nexys</i>	<i>Yes. Replace controller</i>
<i>Dalpark Mainline Toll Plaza</i>	<i>DSE 7220</i>	<i>Add DSE 892</i>
<i>Denne Road Ramp Toll Plaza</i>	<i>DSE 7220</i>	<i>Add DSE 892</i>
<i>Gosforth Mainline Toll Plaza</i>	<i>DSE 7320 MKII</i>	<i>No. RS485 available</i>
<i>Gosforth West Ramp Toll Plaza</i>	<i>SmartGen</i>	<i>Add SG485 module</i>

5. *The Contractor shall use Mylar 0.22mm four (4) pair for the RS485 communication between the AMF controller and the closest network device. If only one cable pair is required, the Contractor shall keep the other cable pairs as spare.*
6. *The Contractor shall allow 50m of Mylar 0.22mm four (4) pair communication cable between the AMF controller and the network device (communication back to the server).*
7. *The Contractor shall provide a RS485 to Ethernet converter to communicate over the Contractors data network. The Contractor shall allow one converter per controller and keep four as spares.*
8. *Please refer to the standard specification for electrical and mechanical work document for the relevant SCADA specifications for each application.*
9. *The SCADA system must be implemented as soon as possible, but not later than one (1) year from the Commencement Date of the Operations Service Period.*
10. *The Contractor may propose a similar off-the-shelf solution or web-based solutions for specific applications without additional cost to the Employer accessed via the SCADA computer that will comply with the Employer's requirements and approved by the Employer's Representative and the Employer.*
11. *The Energy and Power Management Software referred to under item PS3.13.8 shall be installed on the SCADA server. See minimum server and client system requirements that shall apply for the SCADA system under item PS3.13.8 & 7.*
12. *The Contractor shall consider all the technologies, systems, and software and select a SCADA solution to ensure complete and reliable integration. Some energy solution companies already have customised SCADA solutions to integrate with existing systems, controllers, sensors, and I/O's. The Contractor to use a services provider that will be able to provide and interface all the technologies, systems, controllers, and software tailored for multi-energy, multi-sites supervision & management."*
  - a) *It is required from the SCADA system to monitor, as a minimum, the following where applicable:*
    - *Monitoring of power meters inside the main distribution board:*
      - *Kw, kVA, pf, V and A per phase*
    - *Monitoring of circuit breaker status:*
      - *Open, close, trip*
    - *Monitoring of generator supply with alarms for generator faults:*
      - *Run, engine start failure, fuel level, kW, kVA, frequency, V and A per phase*
    - *Monitoring of UPS supply with alarms for UPS faults:*
      - *Bypass, battery low, kW, kVA, frequency, V and A per phase*
    - *Monitoring of temperature of*
      - *Control room*
      - *UPS room*
    - *Monitoring of borehole pumps*
      - *Flow rate*
      - *Pump running current*
      - *Tank level.*

- *Monitor inverters and Battery Energy Storage Systems.*
  - *Inverter and battery Alarms*
  - *Realtime Monthly, yearly and total yield*
  - *Battery SOC and DOD.*
  - *Inverter and battery Temperature.*
  - *Battery cycles”*

## **PS18.2 SCADA Remote Access**

Add the following Sub-Clause:

*“PS18.2.28 The Contractor shall provide reliable communication on site which will satisfy the requirements of the SCADA system communication to all connecting devices. The Contractor is to use the existing local area network (LAN) to eliminate duplication in network infrastructure. The Employer and the Employer Representative must be able to log into the SCADA system remotely or through the Contractors data network (WAN).”*

## **PS18.6 Security Cameras**

Add the following Sub-Clause:

*“PS18.6.2 The Contractor shall provide security cameras with motion detection sensors and with analytics to monitor remote assets. High-risk assets may include but not be limited to, remote assets, road and area lighting, electrical infrastructure, water tower, remote ramps, security fence, containers, or any assets at high risk to vandalism and crime related activities as identified by the Contractor or by Employer's Representative. The video must be able to send notification(s) to a control room that must be acted on receipt of the notification.*

*Minimum specifications shall be as follows:*

*Camera:*

- *Power supply – Lithium batteries with 12V battery low limit and average battery life of 4 years. Max current consumption 320mA.*
- *RF technology – Bidirectional RF. 868MHz operating frequency. Integrated antenna. Transmission security AES encryption algorithm.*
- *Video format - WMV or MPEG. Five (5) imaged per second with video length up to 12 seconds. Image size 320x240 or 640x480 pixels.*
- *Environmental - Operating temperature -25°C/+70°C in IP65 enclosure.*
- *Lens angle - 90°*
- *Infrared LED's- 12m night vision with passive infrared DSP.*
- *Tamper alarm – Tilt sensor.*
- *Housing – Polycarbonate UL94.*
- *Mounting kit- To be provided based on installation location.*

*Control Panel:*

- *Power supply – Lithium batteries with 12V battery low limit and average battery life of 4 years.*
- *RF technology – Bidirectional RF. 868MHz operating frequency. Integrated antenna. Transmission security AES encryption algorithm.*
- *Communication type- 2G3G with an integrated antenna with an external antenna if required.*
- *Video format - WMV or MPEG. Five (5) imaged per second with video length up to 12 seconds. Image size 320x240 or 640x480 pixels.*
- *Environmental - Operating temperature -25°C/+70°C in IP65 enclosure.*

*Monitoring:*

- *The Contractor shall provide a control area or use an external control room to monitor and report on unauthorised activities. In addition, the Contractor shall provide Sim card(s), data and any application software to manage the monitoring function.*

- The following security cameras shall be allowed for under item B-4016-a with additional cameras allowed for under item A-7005-b if triggered by the Employer:

<b>Security Cameras</b>		
<b>Toll Plaza</b>	<b>B-4016-a</b>	<b>A-7005-d Camera-Months (cameras x remaining months)</b>
<i>Ermelo Mainline</i>	6	396 (2 x 66)
<i>Trichardtsfontein Mainline</i>	6	396 (2 x 66)
<i>Leandra Mainline</i>	6	132 (2 x 66)
<i>Leandra Ramp</i>	6	132 (2 x 66)
<i>Dalpark Mainline</i>	6	396 (6 x 66)
<i>Denne Road Ramp</i>	6	132 (2 x 66)
<i>Gosforth Mainline</i>	6	132 (2 x 66)
<i>Gosforth West Ramp</i>	6	396 (6 x 66)
<i>Ermelo Mainline</i>	6	264 (4 x 66)
<b>Total</b>	<b>48</b>	<b>24</b>

### **PS 18.11 Access Control System**

Add the following Sub-Clauses:

*“PS18.11.30. The Contractor shall upgrade the access control system software and firmware at Dalpark and Gosforth Mainline toll plazas including new biometric devices at all access-controlled doors.”*

*“PS18.11.31. The Contractor shall upgrade the access control systems at Ermelo, Trichardtsfontein, Leandra Mainline and Leandra, Denne Road and Gosforth Werst remote ramp Toll Plazas to the same access control system installed at Dalpark and Gosforth Mainline Toll Plazas. This will ensure that the access control complies with the CTROM 2010 specification and will assist with maintenance and reporting on the system.*

*Some of the minimum requirements of the access control system to comply with the 2010 and access control systems installed at Gosforth and Dalpark Mainline Toll Plazas are listed below:*

- *Easy user-friendly installation & setup.*
- *Flexible GUI interface.*
- *Card holder photographs.*
- *Reporting, Anti-passback and zone control.*
- *Multiple companies.*
- *Mantrap (Booth) and turnstile operation support.*
- *16 Powerful schedules per controller.*
- *32 Public holidays integrated into schedule.*
- *Extremely flexible event-based action model.*
- *256 event-controlled counters or time per controller.*
- *Configurable extra data fields with automatic lists, dropdown lists, photographs or notes fields.*
- *Flexible time accumulation exporting.*
- *Site-based configuration and hardware filtering.*
- *Graphical event and alert monitoring and control.*
- *Sequencing task (like enforcing T&A clock-ins before allowing the rag holder to leave site).*
- *Group-based random search.*
- *List optimising quick filters.*
- *Tag holder counters for simple scripting.*
- *Software API for online overrides or extensions.*
- *MS SQL as database platform.*

- COM Plugin system for writing additional event & action handles.
- Integration for 3<sup>rd</sup> party biometrics devices.
- Biometric readers shall be controller based for controller to managed door access.
- Biometric readers shall be provided with a live and fake fingerprint detection biometric terminal, complete with a 125KHz or 13.56Mhz card reader linked via the local data network to the access control system through a local controller.
- Facial biometric readers can also be used if it provides similar security features without using fingerprint detection.

The Contractor shall allow 50m of Mylar 0.22mm four (4) pair communication cable between the door controller and the access-controlled doors. Should the distance between the controller and the access control door exceeds 50m, the Contractor shall install a CAT5e cable between the access control server and the door controller. The access control installation shall be based on one (1) controller for every two doors. The access controller shall be fully functional should the access control server be offline or unavailable to the controller.

Further access control shall have a graphical display indicating all the doors and the status of the access control doors with the door open or close function based on allocated user access rights. Should the access server be offline, only the graphical interface shall be offline, with the rest of the controller fully functional on offline status.”

## **PS 22 CODE OF PRACTICE FOR THE LIGHTING OF NATIONAL ROADS**

### **PS 22.9 SANRAL Lighting Infrastructure Policy**

Add the following Sub-Clauses:

“PS 22.9 SANRAL approved the Lighting Infrastructure Policy in May 2021 with the following purpose:

- a) to clearly outline the process of requesting, evaluating, constructing, commissioning, operating and maintaining lighting infrastructure, and
- b) to promote a safe road environment for road users and the protection of assets through the provision of lighting infrastructure.”

The Lighting Infrastructure Policy is included in C34 to Volume 4 (Project Information Document).

## **PS 29 WALL AND SPLIT-TYPE AIR CONDITIONING**

### **PS 29.1 General**

Add the following Sub-Clauses:

“PS 29.1.5 The Contractor shall replace all air conditioners that are older than fifteen (15) years from date of installation. The number of years of the existing air conditioners will be indicated on the asset register in Part C4 of Volume 4. The air conditioners older than fifteen (15) years must be replaced within three (3) months after the Commencement Date of the Operations Service Period, or after the fifteen (15) year period is reached during the Operation Service Period.

The Contractor shall provide for high-efficient air conditioner with minimum Energy Efficiency Ratio (EER) and Coefficient of Performance (COP) in the range A++ EER/COP >3.2/3.6 (W/W) for cooling and heating cycles respectively. The Contractor shall also use 4<sup>th</sup> generation refrigerants (R32/HFC) with all new installed air conditioners. All new installed air conditions shall be supplied with a SANS 54511-2 energy efficient label clearly indicating the energy efficiency rating.

In addition to the EER/COP performance, the Contractor shall provide the Employer’s Representative with the Seasonal Energy Efficiency Ratio (SEER). The SEER for the air conditioners shall be the highest available value in the market at the time of installation.”

“PS29.1.6 The Contractor shall only install new inverter compressor technology that operates with an inverter to control the compressor motor speed to modulate cooling or heating capacities. The air conditioner to be linked with an occupancy sensor that will switch the unit off when the booth or room is not occupied for a period.

The control circuit shall form part of the fresh air design process and paid through the Prov. Sum item B-6002-a.”

#### **“PS 29.6 Ventilation and fresh air system**

*PS 29.6.1 The Contractor shall supply and install a new fresh air supply system at Gosforth and Dalpark mainline Toll Plazas. The fresh air shall generate a positive pressure inside the tunnel and toll booth to prevent vehicle emissions from entering the toll booth. The fresh air will be introduced via ducting to prevent drafts to the toll collector.*

*The air outlet in the booth is to be ducted to the inlet of the booth air conditioner where possible. In addition, the old fresh air plant shall be removed or upgraded.*

*The ducting shall be free from air leaks, and the air to the booths will be controlled via a variable speed drive (VSD) as the toll booths not occupied shall be switched off until occupied for a set period. In addition, the Contractor shall implement a control unit with occupation sensor interface, re-heater, booth temperature sensor, air pressure switch, static pressure sensor with PID controller, etc., or similar to control the air and temperature in each toll booth.*

*The fresh air system upgrade shall comprise of the following:*

- *Primary washable filters with aluminium coated filter frame via filter box hinged access panel. The filter box will have a weather cowl and louver to prevent rain entering the system.*
- *Axial flows with one sound attenuation or air supply side.*
- *Automatic Variable Speed Drive (VSD) to be added to increase or decrease the airflow based on the pressure in the system.*
- *The installation of ventilation ducting shall be in accordance with SABS 0173 Code of Practice for the installation, testing and balancing of air conditioning ductwork.*
- *The Contractor shall use current valves to control the re-heaters to improve the system energy efficiency.*
- *Modbus ETH or RTU controller for interface with BMS/SCADA system.*
- *The estimated fresh air per booth when occupied shall be about 90 l/s or adjusted based on the Contractors final design taking the booth design into consideration. The air cycles shall be 47 cycles per hour.”*

#### **PS34 GENERAL MAINTENANCE**

##### **ROUTINE MAINTENANCE, CORRECTIVE MAINTENANCE AND BREAKDOWN MAINTENANCE**

Replace the following Sub-Clause:

##### **“PS34.3.6.2 Generator Routine Maintenance**

*Under normal operating conditions (generator running < 250hrs a year) the Contractor shall service the generator every 6 months and a copy to be stored on the SCADA or any other electronic approved maintenance management file system. See proforma under item 17.32. Under abnormal conditions the generator is running > 250hrs the generator shall be serviced every 250hrs or 6 months whichever comes earlier.*

*The generator services shall include as a minimum the Changing of the Oil and Fuel Filters and Air filters as mentioned in the Owner's Manual.*

*Checking / Topping up of Engine oil and Coolant in between the 250hrs Services”*

#### **PS35 GENERAL MAINTENANCE SCORING SYSTEM**

Replace the table in Clause 35.1 with the following table:

<b>General Maintenance Scoring Criteria</b>		
<b>Points Allocation</b>	<b>Guideline Criteria</b>	<b>Standard of Workmanship</b>
10	Contractor performance above expectation. Typically replaced equipment above the original specification.	Generally, above required standard.
9	Contractor performed above expectation. Typically replaced equipment ahead of time with new similar quality equipment.	
8	Contractor performed above expectation. Typically maintained equipment properly, cleaned, mounted and maintained looks new.	
7	Maintenance on a good level. More done than just the bare minimum.	Generally, around the required standard
6	Maintenance performance on expected level, but slightly better than the bare minimum.	
5	This is the minimum expected level. Equipment maintained by doing the minimum.	
4	Maintenance performed at the minimum, just to keep it working.	
3	Maintenance performed is poor or it is working, but damaged. Some level of risk is present.	Generally, below the required standard
2	Equipment not working properly and/or badly damaged. Risk is present.	
1	Equipment is not working, is missing or poses a high risk on some level."	

Add the following Sub-Clauses:

**“PS37 PHOTOVOLTAIC SYSTEM (PV)/RENEWABLE ENERGY**

The Contractor to note that it is the intention of the Employer to install a Small-Scale Embedded Generation (SSEG), in respect of a new photovoltaic (PV) system with battery energy storage system that will be used to reduce energy consumption and to take the complete Toll Plaza(s) off grid, should it be required by the Employer. Off grid shall mean that diesel generator shall be used to charge batteries, when required.

The main components of the PV system shall consist of the following:

- Photovoltaic panels from a tier 1 manufacturer (<https://solaranalytica.com/tier-1-solar-panels/>) shall be supplied and installed on the existing lane canopy structure, canopy structure shall be signed off by a structural engineer;
- PV panes shall be provided with suitable optimisers that will serve as safety units to reduce high DC voltages to a safe voltage during fault conditions or for other purposes i.e. maintenance on the system. The units shall also be used to monitor the performance of each panel;
- Lightweight aluminium mounting structure for the panels;
- DC cabling and cableways between equipment;
- DC combiner boxes complete with intelligent controller for interface with optimises and PV management system, DC fuses, DC switches and DC surge protection;
- Lightning protection for PV system;
- Surge protection with remote monitoring function;
- Cabling between combiner boxes and inverters;
- Cabling between inverter/battery charger and battery storage system;
- Batteries for solar application with >15 years life cycle under the installed conditions at the Toll Plaza. Latest technology (i.e. LiFePO4) type batteries shall be preferred. Other battery technology may be proposed that complies with the contract requirements and installation restrictions;



- To ensure that the charge controller/battery inverter prematurely start the generator under high load conditions on the batteries the battery charger/inverter shall be provided with current-compensation voltage threshold technology;
- The battery inverter shall use the latest integrated algorithms to determine the state of battery charge;
- The battery inverter shall integrate fully with the existing generator controller to ensure that the generator is efficiently used taking warm-up, cool down and minimum running time into consideration.
- The installation shall include a reliable energy monitoring and control solution for control and interface of hybrid applications i.e. Utility, back-up generator, rooftop PV and a Battery Energy Storage System (BESS). The solution shall assist with Plant Performance monitoring, Secure data storage and flexible data export, Grid feed-in management, minimum genset loading, diesel-off mode and remote monitoring and control platform.
- One or more Employer's Representative approved inverters shall be supplied and installed at a location agreed with the Employer's Representative. The inverter(s) capacity shall be sufficient for the maximum power demand of the Toll Plaza based on the Contractors energy audit and data from the energy power meter and after any energy reduction measures were implemented. Inverters shall be type tested inverters in terms of NRS 097-2-1:2017, as amended;
- The PV installation shall comply with NRS 97;
- Inverter supplying power into the local AC power infrastructure with no feedback into the power grid;
- Intelligent interface between inverter or battery charger to control the power feed into the local power network between the different back-up systems;
- SANS 1507 PVC SWA PVC LV Cable between the inverters and electrical infrastructure.
- The SSEG or OGEG shall be signed off by a PrEng or PrTech (Electrical).

The Contractor photovoltaic solution shall include the following:

1. **PV and battery storage Preliminary and Detail Design** – shall include site survey and energy audit to install all the equipment as required to complete the installation. The Preliminary and Detail Design shall consist of a report from a Pr Eng. (structural engineer) confirming that the canopy or roof structure can be used for the SSEG installation based on the Contractors proposed design. The Contractors energy audit shall include the Employers assets upgrade as per the contract and Contractor's programme.
2. **PV Panels** – the Contractor shall use the lane area canopy as the primary location for the PV panels installation at Gosforth mainline Toll Plaza. The control building roof at Ermelo, Trichardtsfontein and Leandra mainline Toll Plaza shall be also used for the installing of the PV panels. All tendered rates shall take the location of the PV panels into consideration. The mounting system shall be non-intrusive type with zero (0) roof penetration.
3. **Battery storage** – the Contractor, shall price for the latest battery technology (i.e. LiFePO4) as the preferred option.
4. **Maintenance of the PV system with battery storage system** – The maintenance to be done monthly per the technology installed by the Contractor. The Contractor shall provide a detailed maintenance plan with report(s) to the Employers Representative for comments and approval before implementing the procedures and report(s). The information shall detail the system performance compared with the design/weather station and significant deviation to be investigated and system repaired, adjusted, or cleaned to restore the system to the design levels. The Contractor shall implement any changes to the maintenance plan and reports as instructed by the Employer's Representative during the commissioning phase–or the Contract period if the current maintenance plan is insufficient. The Employer's Representative shall withhold maintenance payment for the applicable month if the system deviates more than ten percent (10%) of the design specifications approved by the Employer's Representative. The maintenance rate shall include equipment replacement due to failure or not performing as specified (non-performance).
5. **Toll Plaza battery storage container** - The Contractor shall provide one (1) complete container specifically design and engineered for storing the batteries should space not be available in the control building. The container shall be mechanically lockable with a live and fake fingerprint detection biometric terminal complete with a 125KHz or 13.56Mhz card reader linked via the local data network to the access control system through a local controller. The local controller shall not be installed inside the container to override the electronic locking mechanism via the local controller when the biometric reader fails or

is vandalised. The Biometric shall also function under all-weather conditions expected in an exterior or harsh environment at the installation location.

The container size shall be based on the kWh battery capacity as indicated in the Cost Matrix per toll plaza. The container shall also accommodate all the equipment to charge and manage the batteries, including the complete energy management system, cable management system, fire detection and suppression, access control system as required by the contract. The container shall also accommodate equipment that will not be installed on the toll plaza canopy or building roof or other location based on the Contractors proposed design. The container shall be double insulated to avoid energy consumption by the air-conditioning system.

The Contractor shall be required to prove that the material and the PV installation complies with local and international standards and regulations during the Detailed Design and commissioning phases.”

The table below provides information on the existing area available on the control building and lane canopy roofs at the mainline and remote ramp toll plazas for the installation of PV panels:

Estimated available area for the Installation of Photovoltaic Panels							
Toll Plaza	Building roof				Building outside		Area m <sup>2</sup>
	A	B	C1	C2	D*	E	
Ermelo Mainline	57	45	71	43	42	63	321
Trichardt Mainline	102	47	76	53	42	63	383
Leandra Mainline	57	45	71	43	42	63	321
	Canopy						
	W			L			m <sup>2</sup>
Leandra Ramp**	12.225			15.1			185
Denne Road (Off ramp)	13.2			16.2			214
Denne Road (On ramp)	13.2			16.2			214
Dalpark Mainline (existing 114kWp Solar PV grid tied system)							
Gosforth Mainline	14			116.4			1630
Gosforth West (west bound)	16.24			21.94			356
Gosforth West (east bound)	16.24			17.44			283

\* The Contractor shall consider roof area D only upon approval of the Contractor's structural engineer.

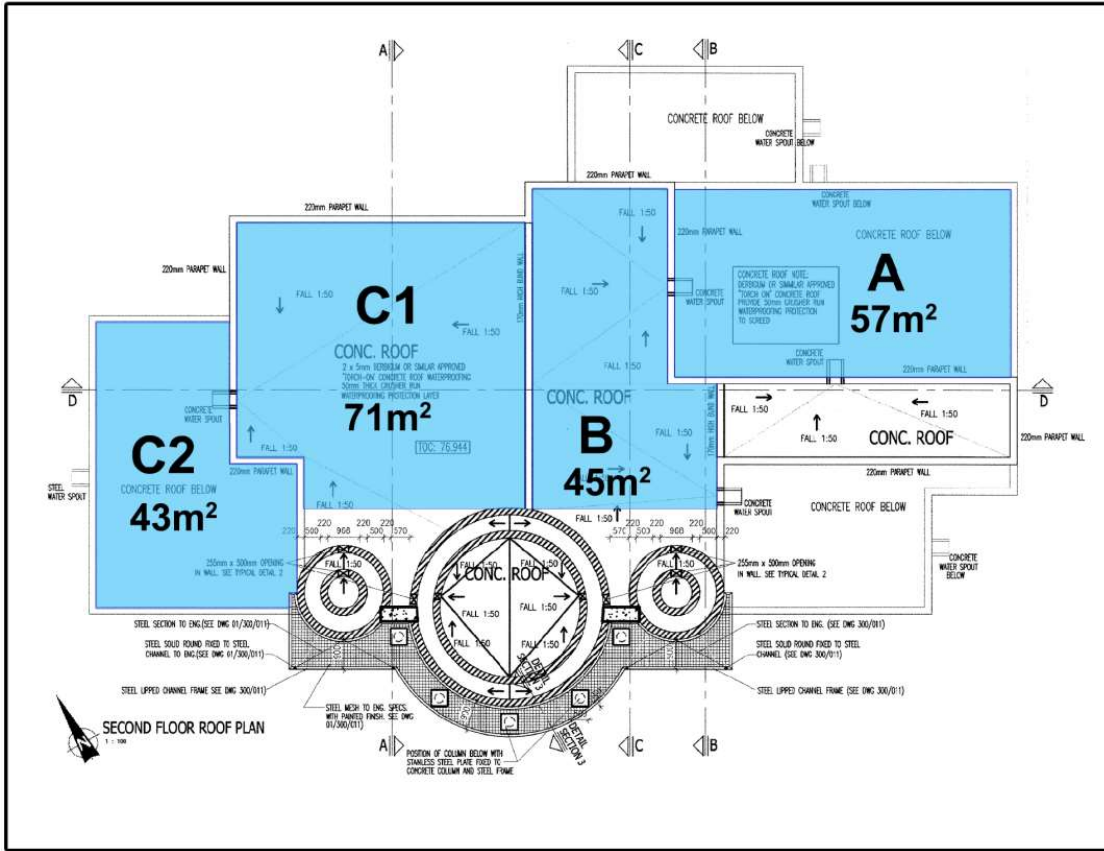
\*\* Canopy area shall only be considered upon approval of the Contractor's structural engineer that the Contractor can install solar PV panels based on standard industry-approved installation methods. Should the Contractor's structural engineer recommend additional support, this will be dealt with through the Employer's Works Authorization process if economically viable.

Estimated area less maintenance area for the Installation of Photovoltaic Panels			
Toll Plaza	Building		
	m <sup>2</sup>	-m <sup>2</sup>	=m <sup>2</sup>
Ermelo Mainline	321	20%	257
Trichardt Mainline	383	20%	306
Leandra Mainline	321	20%	257
	Canopy		
Leandra Ramp**	185	20%	148
Denne Road (Off ramp)	214	20%	171
Denne Road (On ramp)	214	20%	171
Dalpark Mainline (existing 114kWp Solar PV grid tied system)			
Gosforth Mainline	1630	20%	1304
Gosforth West (west bound)	356	20%	285
Gosforth West (east bound)	283	20%	227

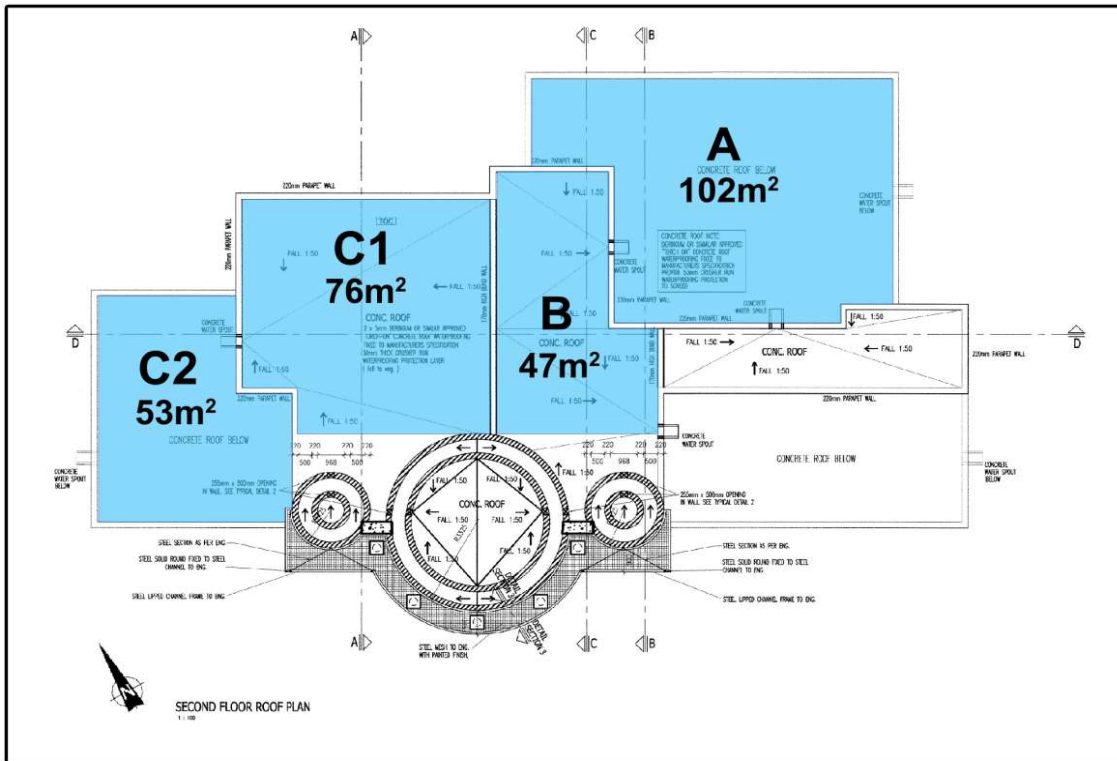
-m<sup>2</sup> maintenance area deducted

=m<sup>2</sup> estimated available area for solar PV panels

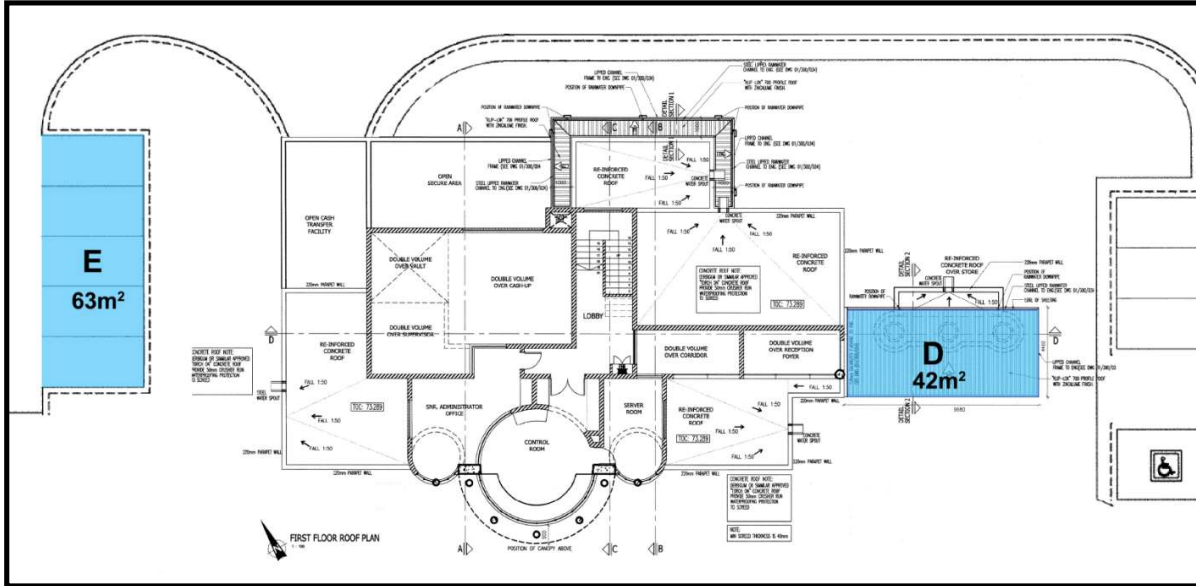
**Leandra and Ermelo Mainline Plaza Building available roof area for solar PV panels:**



**Trichardtfontein roof area are larger than Leandra and Ermelo control buildings:**



**Leandra, Trichardtfontein and Ermelo Mainline Plaza Building outside areas available for solar PV panels:**

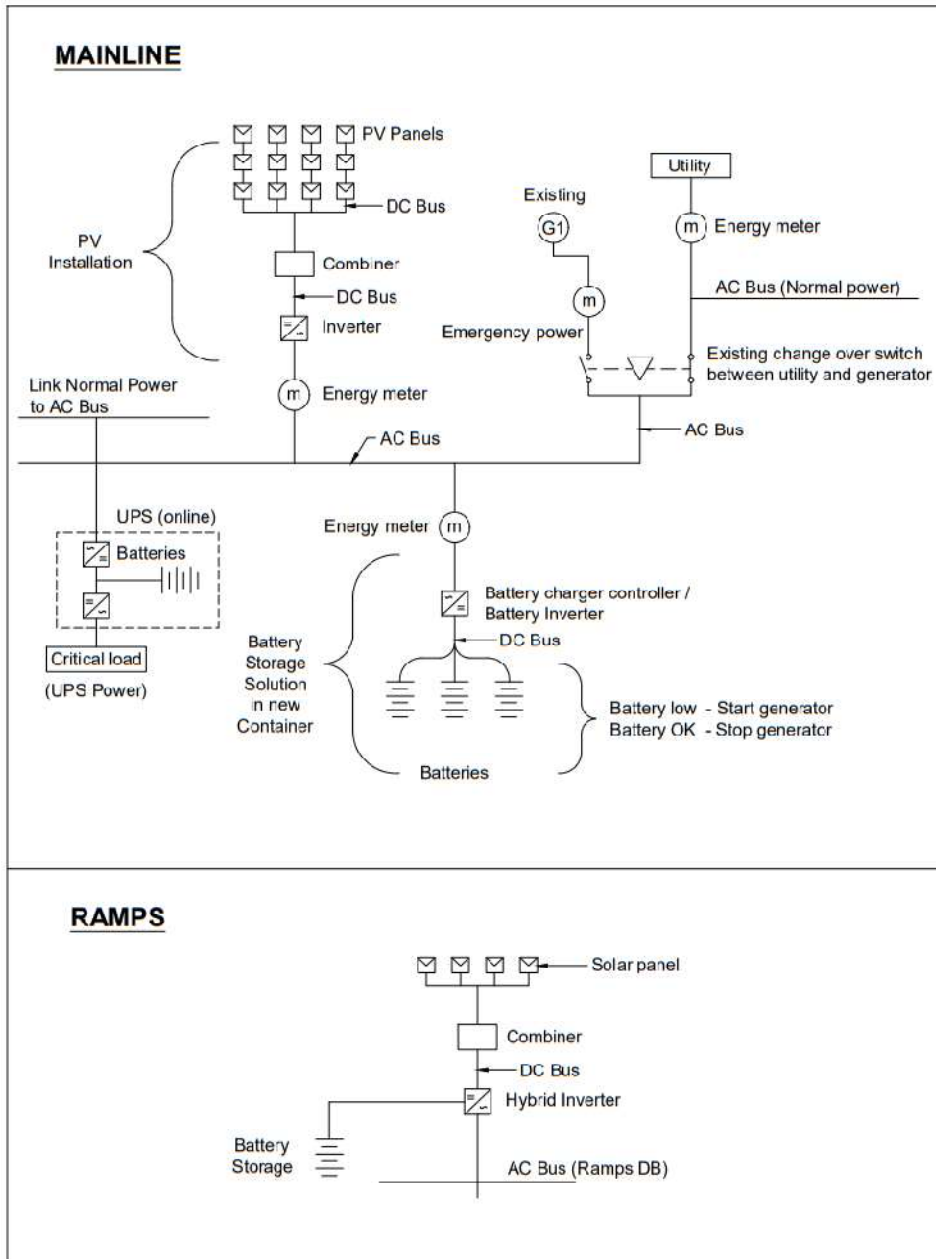


Area E shall be new solar PV carports replacing the damaged steel netted carports to add to the total solar PV system.

Area D will be excluded depending on the Contractors structural engineer’s recommendation to use this area for solar PV panels.

The Contractor shall provide a purpose build shipping container double insulated with secure access control, an air conditioner and fire detection and fire suppression for the battery storage solution. The location of the container shall be confirmed on site but as close as practical possible to the main electrical switch room. The Container shall be designed to accommodate a minimum of 500kWh in battery storage to allow for future expansion. The AC cabling to the electrical switch room shall also allow for the future battery (500kWh) expansion including the switchgear. The Contractor shall mitigate fire risk in their Preliminary and Detailed Design, including operational procedures and training for approval by the Employer’s Representative.

The Contractor shall provide a solar PV system solution for each mainline and remote ramps toll plaza based on the high-level layout provided below:



The Contractor to note that the battery storage system may be excluded as instructed by the Employer.

The Contractor shall maintain the PV system monthly that will include but not be limited to cleaning panels, inspect mounting structure, cabling, cable connection, equipment, batteries, testing, performance review report of the system.

The Contractor shall provide a complete and comprehensive maintenance plan to maintain the PV system to the Employer's Representative for comments and approval. Maintenance payment will only be allowed based on the approved maintenance PV plan and a detailed monthly report confirmation. The objective of the maintenance plan is to ensure that the system is kept safe, functional and performs based on the approved design considering weather conditions.

The energy consumption per Toll Plaza is included in Part C25 of Volume 4. The table below provides the average energy data based on City of Ekurhuleni invoices for the period from June 2020 to October 2021.

ENERGY CONSUMPTION PER TOLL PLAZA BASED ON MAY 2021 TO MARCH 2022 UTILITY INVOICES									
Item	Ermelo Mainline	Trichardt Mainline	Leandra Mainline	Leandra Ramp	Dalpark Mainline	Denne Road	Gosforth Mainline	Gosforth West	Unit
Utility	Eskom	Eskom	Eskom	Eskom	City of Ekurhuleni	City of Ekurhuleni	City of Ekurhuleni	City of Ekurhuleni	Name
Account No.	9523617823	5777598918	6942541498	5328191593	3405517294	3405520417	2608286654	2103887159	No.
Account type	Ruralflex Interval	Ruralflex Interval	Landrate 1,2,3	Landrate 1,2,3	N/A	N/A	N/A	N/A	Type
Ave. Energy per month	23150	26936	28659	7623	58304	18791	116469	15352	kWh
Ave. Energy per day	835	891	1153	253	1916	616	3895	511	kWh
Ave. Energy per lane	104	89	144	63	120	154	177	73	kWh
Apparent Power	No data	53	No data	No data	143	42	57	34	kVA

To avoid energy consumption, the Contractor shall commission the photovoltaic and battery storage systems within twelve (12) months from the Commencement Date. Should the Contractor fail to implement the photovoltaic and battery storage within twelve (12) months, the potential energy avoidance will be to the Contractors account as determined by the Employer's Representative or Employer. The potential energy avoidance will be based on the minimum of 30% of the monthly utility invoice.

The minimum inverter technical specification is provided in the table below:

Inverter Minimum Technical Specification			
Item	Description	Inverter	Unit
1	MPPT	Yes	Voltage
2	Max input voltage	1000	Voltage
3	Feed-in / connection phases	3 / N	Voltage
4	Grid Frequency	50	Hz
5	Power factor at rated power	1	pf
6	THD	≤3%	%
7	Minimum efficiency	≥96%	%
8	Protection class	IEC 62109-1	
9	Overvoltage category	IEC 62109-1	
10	Grid connection	NRS 097-2-1	
11	Self-consumption	<20W	Watt
12	Topology	Transformer less	
13	Cooling	Fan / Active cooling technology	
14	Degree of protection	IP65	
15	Climate category	IEC 60721-3-4	4K4H
16	Interface	RS / Ethernet / Optical / USB / Web	
17	Protocols	Modbus TCP or RTU	
18	Guarantee	≥5 years	Years
19	Off-Grid capable	Yes	
20	Anti-islanding protection	Yes	
21	Modular	Yes	
22	Peak load shaving	Yes	
23	environmental	-20°C to 60°C	°C
24	Humidity (non-condensing)	Max 95%	%
25	Maximum altitude	3000m	m

The table below provides photovoltaic (PV) applicable standards that shall apply to the installation but not limited to:

<b>PV Installation Applicable Standards</b>			
<b>Item</b>	<b>Component</b>	<b>Description</b>	<b>Standard</b>
1	Accumulators for use in PV systems	Safety. Test requirements and procedures. Performance, Test requirements and procedures.	BS EN 50315-1 BS EN 50315-2
2	Batteries	Batteries for on-grid applications and installation.	SANS 61427-1 SANS 61427-2 SANS 60086-1 SANS 60086-2 SANS 60086-4 SANS 62485-1 SANS 62485-2
3	PV array (DC) wiring	Electric cable for photovoltaic systems.	SANS 62930
4	Distribution boards	Class Rating Boxes and enclosures for electrical accessories.	SANS 61439-2 SANS 60670 Relevant parts
5	DC Circuit Breakers	≤1000 AC or 1500 DC	SANS 60947-2
6	DC Fuses	Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems, ≤1500V DC	SANS 60269-6
7	Inverter	Safety of power converters for use in photovoltaic power systems	SANS 62109-1 IEC 62109-2
8	PV Module - Crystalline	Design qualification and type approval	SANS 61215-1 IEC 61215-1-1 IEC 61215-2
9	PV Modules - Ammonia Corrosion	Photovoltaic (PV) module - Ammonia corrosion testing. Salt mist corrosion testing PV modules.	IEC 62716 IEC 61701
10	PV modules - Safety	Photovoltaic (PV) module safety qualification.	SANS 61730-1 sans 61730-2
11	PV connectors	≤ 1500V DC and ≤ 125A	IEC 62852
12	RCM	Residual current monitoring	IEC 62020
13	Surge Protection Devices (SPD)	≤ 1000V	SANS 61643-11
14	SPDs	Surge Protection Devices connected to the DC side, up to 1500V DC	IEC 61643-31
15	Electrical Safety Standards	The wiring of premises Part 1: Low-voltage installations. Low voltage electrical installations - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supplies systems.	SANS 10142-1 SANS/IEC 60364-7-712

The table below provides the minimum photovoltaic (PV) Panel Technical Specifications:

<b>PV Panel Minimum Technical Specification</b>		
<b>Item</b>	<b>Description</b>	<b>Solar panel</b>
1	Manufacturer	Tier 1
2	Cell Technology	Mono
3	Test Condition	Irradiance of 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup> (AM 1.5, 25°C)
4	Warranty	12 year material and workmanship, 25 year linear output
5	Efficiency	>20%



6	Clamping	Long and short sides
7	Connector type	MC4
8	Annual degradation over 25 years	<1%
9	Cable Cross section size	4mm <sup>2</sup>
10	Maximum System Voltage	1000V/1500V DC
11	Operating temperature	-10° to +80°C
12	Maximum Series Fuse Rating	20A
13	Safety Class	Class II
14	Hail impact	Hail impact IEC standard
15	Fire Performance	UL Type 1

The table below provides the minimum Energy Monitoring and Control between energy system Technical Specifications:

<b>Energy Monitor and Control Minimum Technical Specification</b>			
<b>Item</b>	<b>Description</b>	<b>Monitor</b>	<b>Unit</b>
1	Energy monitor	Photovoltaic system	kWp/Yield
2	Energy monitor	Back-up Generator	kW/kVA/kVAr/PF
3	Energy monitor	Utility	kVA kW/kVA/kVAr/PF /other
4	Energy monitor	Battery Energy Storage System	kWh/SOC/cycles
5	Sensor monitor	Temperature UPS room	°C
6	Sensor monitor	Temperature Server room	°C
7	Sensor monitor	Bulk diesel tank	L
8	Sensor monitor	UPS systems	All
9	Communication compatibility	SNTP	Site dependent
10	Communication compatibility	Modbus RTU & TCP	Site dependent
11	Communication compatibility	MQTT	Site dependent
12	Communication compatibility	RS232/422/485	Site dependent
13	Communication compatibility	Ethernet with 2 RJ45 I210, transmission rate: 10/100/1000 Mbps on low IEEE 1588 supported	Comms
14	Communication compatibility	USB 2.0 port with 2 USB type B, USB 3.0 port with 2 USB type A	Comms
15	Communication compatibility	TPM connector Ver 2.0 for cyber security - hardware encryption TPM module HMIYMINATPM201 to be installed/default installed on motherboard	Comms
16	Communication compatibility	Other based on approved solution	Site dependent
17	Single-genset minimum loading	Yes	All
18	Grid feed-in management	Yes	All
19	Data export and visualisation	Yes, based on approved solution	All
20	Configuration interface	User-friendly configuration interface through local web browser (ethernet connection) for autonomous connectivity and equipment setup	All
21	Pre-assembled casing	IP65 metal enclosure with embedded power supply	All

Energy Monitor and Control Minimum Technical Specification			
Item	Description	Monitor	Unit
22	Remote monitoring	Yes, A data-visualization platform tailored for multi-energy multi-sites supervision & management.	All
23	Local SCADA	Yes, Toll Plaza synoptic view on touch screen with all data + alarms. . Can replace SCADA client and server if compliant.	All
24	Real-time offline monitoring	Yes, Local SCADA always available on site.	All
25	Reliable datalogging	Collection and local secure storage of all data + alarms from equipment connected on site for over 100 days. Data can be collected from meters, solar inverters, genset controllers, weather sensors (irradiance/temperature), and I/Os	All

Add the following Sub-Clauses:

**“PS38 ENERGY PERFORMANCE CERTIFICATE FOR BUILDINGS**

*The Contractor shall comply with the mandatory Legislation as published by the Minister of Mineral Resources and Energy under section 19(1)(b) of the National Energy Act. The notice was published on 8th December 2020 in notice 700 Government Gazette 43972 and stipulates that the Contractor is required to obtain the building's energy performance information according to SANS 1455.*

*The Contractor shall appoint an Accredited Inspection Body to audit each Toll Plaza and, once completed, submit the relevant supporting documents to SANAS for inclusion into the National Building Energy Performance Register. SANAS will issue a unique Energy Performance Certificate (EPC) number, and the Inspection Body will issue the EPC to the Contractor with a copy to SANAS.*

*Energy Performance Certificates are "snapshots" of a building's energy consumption (kWh/m2/year). The Contractor shall obtain an updated EPC after a significant building renovation or energy avoidance upgrade as instructed by the Employer Representative or by the Employer.*

*The EPC must be displayed in the Toll Plaza foyer/reception area and submitted to the South African National Energy Development Institute (SANEDI) every five (5) years.*

*The Contractor shall obtain the EPC when instructed by the Employer's Representative.”*

Add the following Sub-Clauses:

**“PS39 OTHER ENERGY EFFICIENCY UPGRADES**

*The Contractor shall upgrade the following assets at each Toll Plaza to avoid energy usage:*

- *Heat pumps shall be installed into the exiting water heating installation system.*
- *Building envelope insulation. The Contractor shall install ceiling insulation for the control buildings as listed in the Cost Matrix.*

*Heat pump for approximately 200L water heating system.*

- *The Contractor shall provide a combination domestic integrated heat pump that can heat the approximately 200L water through the heat pump or with an additional 2kW traditional back up element. The additional 2kW traditional back up element is not a requirement.*

- *Must use less than a third of the energy of a normal electrical water heating system to comply with SANS 10400XA.*
- *The Contractor shall provide a level and secure surface area to prevent any vibrations.*
- *The Electrical supply can be from the existing isolator for the geyser and the Contractor shall allow 20m or cable between the isolator and new integrated heat pump.*
- *The integrated heat pump water heater shall be installed in terms of SANS 10254.*
- *Must work in all weather conditions and at night.*
- *Working ambient temperature shall be -7 to approximately 43 °C.*
- *All exposed water pipes shall be insulated. The rate shall allow 15m of pipe insulation per installation.*
- *A vertical air discharge heat pump with highly efficient heat exchanger shall be provided.*
- *Includes a micro-computer with timer and temperature functions, which automatically starts and stops the heat pump according to the water temperature and the timer setting.*

*Building ceiling insulation.*

*The Contractor shall provide the following information on the thermal ceiling insulation product confirming compliance:*

- *The manufacturer information.*
- *The product information, type identification.*
- *The batch identification.*
- *Material information i.e., length in meter, width, and thickness in mm.*
- *The normal areas of the material in m<sup>2</sup>.*
- *The normal thermal resistance (R-Value) of the material, in m<sup>2</sup> K/W.*
- *The fire performance classification in accordance with SANS 428.*
- *A statement that the material is combustible or non-combustible, as relevant.*
- *A warning, referring to precaution of health and safety during handling and installation of the insulation material.*
- *Confirmation that the installation was done based on the data sheet and installation guidelines as obtained from the supplier.*
- *Confirmation that the lighting and other electrical installation affected by the thermal insulation was checked before and after the installation to confirm safety.*

”

Add the following Sub-Clauses:

#### **“PS40 FIRE DETECTION SYSTEM**

*The Contractor shall provide a new fire detection system for Denne Road, Dalpark Mainline, Gosforth Mainline and Gosforth West remote ramps toll plazas that complies with the latest regulations and standards. The system shall be complete with controller, smoke detectors and cabling as per the Contractor Preliminary and Detailed Design.*

*The system shall have one (1) addressable fire panel with LED indication for both fire and fault conditions and front panel user interface. The Contractor shall provide one or more smoke detectors in each room. The fire panel shall support Aritech 2000 and 900 series protocol with I/O programming and extensive maintenance features.*

*The minimum requirements of the system are listed below:*

- *Power – Mains supply 230V with battery back-up (72-hour autonomy). The Contractor shall provide electricity at the panel location.*
- *Loops – 4 (Class A/8 (Class B), <2km.*

- *Inputs and Outputs – 4 x Relays.*
- *Environment – IP 54, -5°C to +40°C.*
- *Maintenance – The system should include a one-person maintenance function: programming service reminder, on-line diagnostics and statistics.*
- *Devices – Up to 128 devices addresses per loop.*
- *Detectors – Smoke and heat detectors according to the Contractors fire system design.*
- *Cables and wireways - The Contractor shall provide all cables and wires and wireways for the cables and wires. Cables and wires shall be protected and secured the entire route.*

*The fire detection system shall meet legal requirements and adhere to SANS 10139/BS 5839.”*

*The table below provides an overview of locations for the installation of smoke and heat detectors to be allowed for:”*

<b>Estimated Smoke and heat detectors based on rooms</b>				
<b>Location</b>	<b>Denne Road</b>	<b>Dalpark ML</b>	<b>Gosforth ML</b>	<b>Gosforth West</b>
<i>Male toilet – public</i>	0	1	1	0
<i>Female toilet – public</i>	0	1	1	0
<i>Archive</i>	0	2	2	0
<i>Foyer</i>	0	1	1	0
<i>Administration</i>	0	2	2	0
<i>Boardroom</i>	0	2	2	0
<i>Manager office</i>	0	1	1	0
<i>Control room</i>	2	2	1	0
<i>Computer room</i>	2	1	1	0
<i>Kitchen</i>	2	2	2	0
<i>UPS room</i>	2	2	2	4
<i>Cleaner store</i>	0	1	1	0
<i>Workshop</i>	0	1	1	0
<i>Generator room</i>	2	1	2	0
<i>Male toilet – staff</i>	2	1	1	0
<i>Female toilet – staff</i>	2	1	1	0
<i>Cash up</i>	0	2	2	4
<i>Store in cash up</i>	0	1	1	0
<i>Safe</i>	0	1	1	0
<i>Cash dispatch</i>	0	1	1	0
<i>Security garage</i>	0	2	1	0
<i>Route manager office</i>	0	0	1	0
<i>Tunnel</i>	0	0	8	8
<i>Total per plaza</i>	14	29	37	16
<i>Total estimated detectors</i>	96			

Add the following Sub-Clauses:

**“PS41 NEW TUNNEL SECURITY SCREEN DOOR**

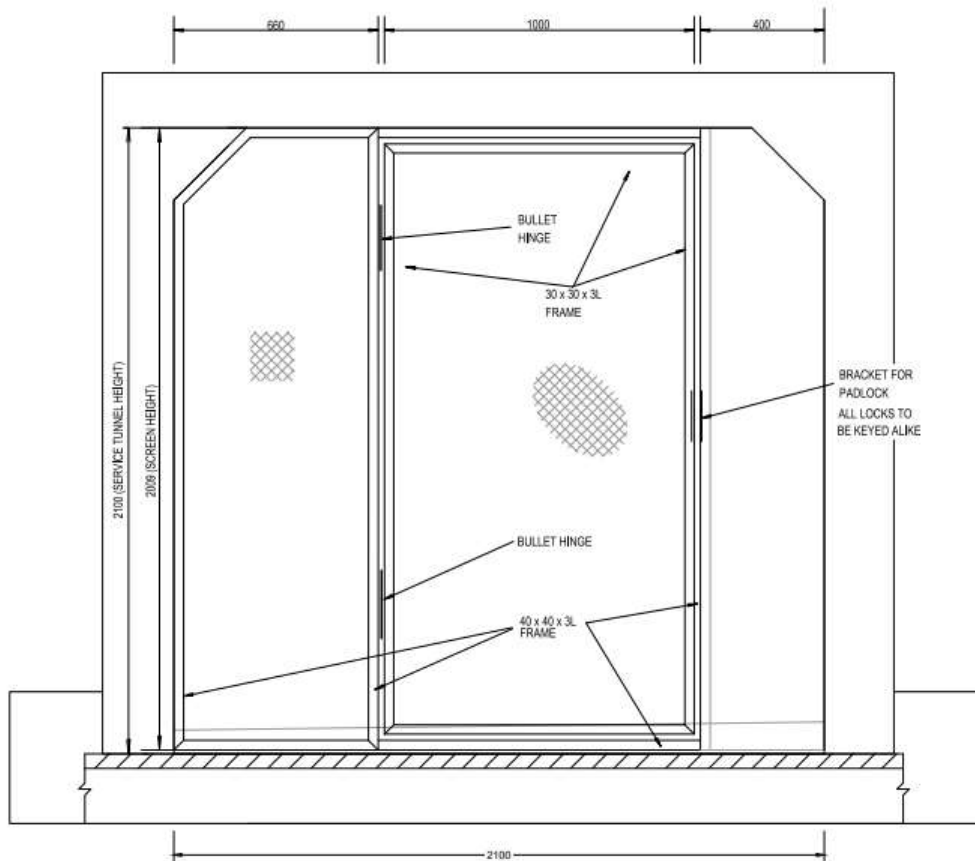
*The Contractor shall design, manufacture, supply, and install new security screen doors at lane 29W for Gosforth Mainline and 25E for Dalpark Mainline toll plaza to create a secure area at the end of the service tunnel for installing and maintaining solar PV grid-tied inverters.*

The new tunnel security screen door shall be manufactured out of the same material as the existing screens as provided below:

- Fixing brackets, dols, grids to be hot-dipped galvanised in accordance with SANS standards.
- Structural steel grade 300w.
- 72 “Mentex” expanded metal.
- 40 x 40 3L Frame
- Final dimensions to be determined on site.

The installation of the new tunnel security screen door shall be coordinated with the installation of the new fresh air system and grid tie inverters.

Proposed new security screen door in the tunnel:”



ELEVATION OF FIXED SECURITY SCREEN WITH DOOR

Add the following Clauses:

**“PS42 SECURITY FENCE UPGRADE**

The Contractor shall upgrade the existing galvanized diamond mesh fence at the front of the toll plaza with a more secure and updated security fence.

The new fence shall be 2400mm x 2500mm high-security, vandal-proof, and anti-tamper fence with mesh openings of 76mm x 12.7mm, polyester powder as finishing. The fence rate shall consist of anti-tamper screws, nuts, bolts, posts, concrete, earthing the fence to the plaza earthing system.”

Add the following Sub-Clauses:

**“PS43 UPGARDE THE MV POWER SUPPLY TO GOSFORTH MAINLINE**

The Contractor shall upgrade the existing 6.6 / 6.6 kV power supply from the existing 500kVA Ekurhuleni Metropolitan Municipality minisub in Angus Street in The Reef area. The power supply to the Gosforth Mainline Toll Plaza is via a 95mm<sup>2</sup> 3 core Cu XLPE cable.

The cable was damaged and repaired at several locations due to theft and vandalism and must be replaced and secured in place. Further, the Ekurhuleni Metropolitan Municipality minisub is also exposed to theft and vandalism and poses a significant power supply risk to the toll plaza.

The Contractor shall also setup a Service Level Agreement (SLA) with an electrical subcontractor to respond to power failures due to theft and vandalism of the Employer's electrical infrastructure. The SLA shall include the following response and repair times:

- Response time - < 12hrs.
- Repair time - < 48hrs.

The repair item shall be based on exiting material and labour rates within the Cost Matrix. Any additional material may require additional repair time but shall be less than one week or 168 hrs. The cost for the SLA setup and to maintain the SLA in place shall be included in the monthly Electrical maintenance cost item A-5201.

This will be an if triggered item.”

Add the following Clauses:

**“PS44 PHOTOVOLTAIC CARPORTS FOR ERMELO, TRICHARDTSFONTEIN AND LEANDRA MAINLINE**

The Contractor shall upgrade the existing wind damaged steel shade net carports. The new carports shall be “solar PV” type carports to cover area E as indicated on the plaza layout drawing included under item PC37. Area E is estimated at 63m<sup>2</sup> or >10kWp, and the solar panel area can be bigger than the area depending on the Contractors solar PV panels sizes. The Employer's Representative will not accept a smaller. The solar PV panels shall also face the optimal direction for optimal energy yield. The new solar PV carport shall be a four-column design.

A professional structural engineer shall design and certify the structure to withstand the solar PV panel load and wind forces for each site.

The Contractor shall run the solar PV DC cabling in approved wireways to the combiner or inverter as per the Contractors approved design.

The solar PV carport shall form part of the solar PV solution under PS37 provided by a competent specialist sub-contractor.

The solar PV carport shall consist of the following:

- Complete four-column galvanised steel carport frame.
- Complete mounting frame for the solar panels.
- Complete DC and AC wireways for cables.
- Cabling and connectors for solar PV installation.
- All installation material.
- Earthing and lightning protection.
- Solar PV Combiner for DC.
- DC and AC isolation switchgear for maintenance and safety.
- Complete inverter installation if installed at carport.”

<b>Solar PV carport configuration</b>				
<b>Estimated</b>	<b>Ermelo</b>	<b>Trichardtsfontein</b>	<b>Leandra</b>	<b>Unit</b>
Area	63	63	63	m <sup>2</sup>

Max Power	10.5	10.5	10.5	kWp
Parking bays	5	5	5	No.
Bay configuration	Single	Single	Single	No.
Layout area	E	E	E	

The solar PV carport structure is to be manufactured off-site and assembled on-site, with no welding or cutting allowed on site. The Solar PV carports shall be manufactured to SABS standards and approved by a structural engineer.”

Add the following Sub-Clauses:

**“PS45 NEW CAT LADDERS FOR, DENNE ROAD REMOTE RAMPS TOLL PLAZAS**

Install solar panels on the canopy roof to void energy usage from the grid and reduce energy costs. The installation of cat ladders shall provide access to the canopy roof for maintenance and repairs to the canopy and equipment installed.

Therefore, the Contractor shall design, supply, and install new cat ladders at Denne Road Remote Ramps Toll Plaza as per the as-built cat ladder drawing provided in Volume 4 C33.”

Add the following Sub-Clauses:

**“PS46 SPARE SUMP PUMPS**

Flooding of the service tunnel is a risk to the toll system and electrical infrastructure. With this risk in mind, the Contractor shall supply spare sump pumps to replace failed pumps and have a complete portable sump pump available in an emergency. The emergency sump pump shall be complete with a sump pump, 100m flexible pipe, 50m suitable electrical cable and all couplings to pump water from a maintenance hole or tunnel.

The pump shall comply with the following specification:

- Flygt Dewatering pump CS3085.183 (434) 2kW C/W 10 and 50 meters of cable for fixed and portable applications respectively to deliver 5l/sec @ 6.9 TDH.
- One pump automatic control panel.”
- The Contractor shall control the portable pump manually during the emergency pump process.”

Add the following Sub-Clauses:

**“PS47 ALARM ANNUNCIATOR**

The Contractor shall replace the existing alarm annunciators at Gosforth mainline, Gosforth West remote ramps, Dalpark mainline, and Denne Road Toll Plazas with a new panel with the following minimum requirement and scope of works:

- New microprocessor-based alarm annunciator panel with a total of 16 LED backlit indicator system to replaced existing, with user laser printable indicator windows inserts as per existing description or new descriptions based on available inputs from the UPS, generator, and other available systems. A new indoor IP42 wall mounted housing shall be provided to replace the old.
- Fully solid state with life expectance of >150 000hrs.
- Removable terminals.
- Jumper selectable colour per window (Red/Green/Amber).
- Mylar 16 pair 0.22mm cable between the alarm annunciator panel and the output terminal of the equipment. The Contractor shall allow 300m of cable per site.
- Standard DIN size Bezel (96x192) & Cut out size (90x183).
- Pushbuttons for “ACCEPT”, “RESET” and “LAMP TEST” shall be provided.
- Bypass selector switches shall be provided for the canopy, fog, area and road lights.

- *RS 485 to Ethernet converter shall be provided for remote plazas to replicate alarm conditions on a remote alarm annunciator panel at the mainline Toll Plaza (similar to existing installation).*
- *Complete labour to install the new panel and input wiring (communication) and connecting to the Mains, UPS, Fresh air system, temperature and generator wired outputs.*
- *Remote communication between the mainline and remotes ramps to be setup and tested.*
- *All connectors, labels, cable management systems and material to complete the installation shall be provided.*
- *Testing and commissioning.*
- *As-build documentation.*

*The replacement of the alarm annunciator panel is an if trigger item. The Main Contractor shall provide a Preliminary Design and, if approved by the Employer's Representative, continue with the Detail Design. The Employer's SCM tender process shall then be followed after the approval of the Detail Design and tender documentation."*



### **C3.2.4 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATION FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: TOLL SYSTEMS (VOLUME 2 BOOK 4A)**

The number of each Clause in a Particular Specification in this section consists of the Prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specification for the Operations and Maintenance of CTROM Projects: Toll System (Volume 2 Book 4a). The number of any new Clause which does not form part of any Clause in the Standard Specification for the Operations and Maintenance Projects: Toll System (Volume 2 Book 4a) and which is included herein, is also prefixed by PS followed by a new number. Such new numbers follow on the last Clause used in the relevant section of the Standard Specification for the Operations and Maintenance of CTROM Projects: Toll System (Volume 2 Book 4a).

#### **PS1 GENERAL**

##### **PS1.1.1 Scope**

Add the following subclause:

*"PS1.1.1.2 The Contractor is to refer to 'Form D13 Distribution of Risk between the Contractor and the Nominated Subcontractor Agreement', to determine the risk and responsibility assigned during the Operation Service Period."*

##### **PS1.1.2 Overview**

Replace the second paragraph of subclause 1.1.2., numbered as 1.1.1.1, with the following:

*"1.1.2.1(b) The Contractor and the Nominated Subcontractor shall take full responsibility for maintaining all portions and components of the Toll System from the Commencement date. The Contractor and the Nominated Subcontractor shall be required to operate and maintain the Toll System, in existence at hand-over, to comply with the performance requirements."*

Replace items 1.1.2.3 (e) and (f) with the following:

"

- (e) *LSDU;*
- (f) *DCS;*
- (g) *ITIS interface; and*
- (h) *Other interfaces to external systems such as the TCH System (for processing of ETC Transactions) and the National Payment System (for processing of Bank Card transaction"*

Replace the first sentence of subclause 1.1.5.6 with the following sentence:

*"Further, a Violations Processing Centre (VPC) shall provide for the processing and collection of unpaid toll fees and unpaid Customer Accounts, the managing of evidence related to exceptions, and the possible administration of prosecuting procedures as required by the AARTO, CPA and Civil litigation processes."*

Add the following clauses:

#### **"PS1.2 ROLES AND RESPONSIBILITIES**

##### **PS1.2.1 The Contractor and Nominated Subcontractor (System Integrator) roles are:**

*The Contractor and the Nominated Subcontractor (System Integrator) roles are required for the duration Operations Service Period. The role of the Contractor and the Nominated Subcontractor (System Integrator) may be one Contractor or a Contractor with Subcontractors.*

*The role of the Nominated Subcontractor (System Integrator) for the Toll System, for the purposes of this Contract is separated. The Contractor, for the Subcontract for the design build, operations, and maintenance of the Toll System, will be appointed as a Nominated Subcontractor by the Contractor of the Operations and maintenance of Toll plazas.*

### **PS1.2.2 Contractor**

*The Contractor shall primarily be contracted for all operations and maintenance related to the CTROM Operations contract (inclusive of the Toll System equipment to be provided and maintained by the Nominated Subcontractor).*

*The Contractor shall be responsible for the maintenance of all Employer's Assets, Facilities and Equipment, as well as the Nominated subcontractor-provided Assets, Facilities and Equipment.*

*The Contractor shall ultimately be responsible for the management and control of the Nominated Subcontractor. The Contractor shall monitor, measure and report on the performance of the Nominated Subcontractor, to ensure that the Nominated Subcontractor delivers in terms of the Employer's Requirements. The Contractor shall be cognisant of the risk allocated in Part C3.2.6 Performance Measurement.*

*The Contractor shall be responsible to provide and maintain a Help Desk and Equipment Record System and will utilise these systems to allocate, monitor and report on maintenance tasks and tickets assigned to the Nominated Subcontractor, and monitor and report the availability of spares.*

*For the avoidance of doubt, the following aspects will be maintained by the Contractor, and not by the Nominated Subcontractor:*

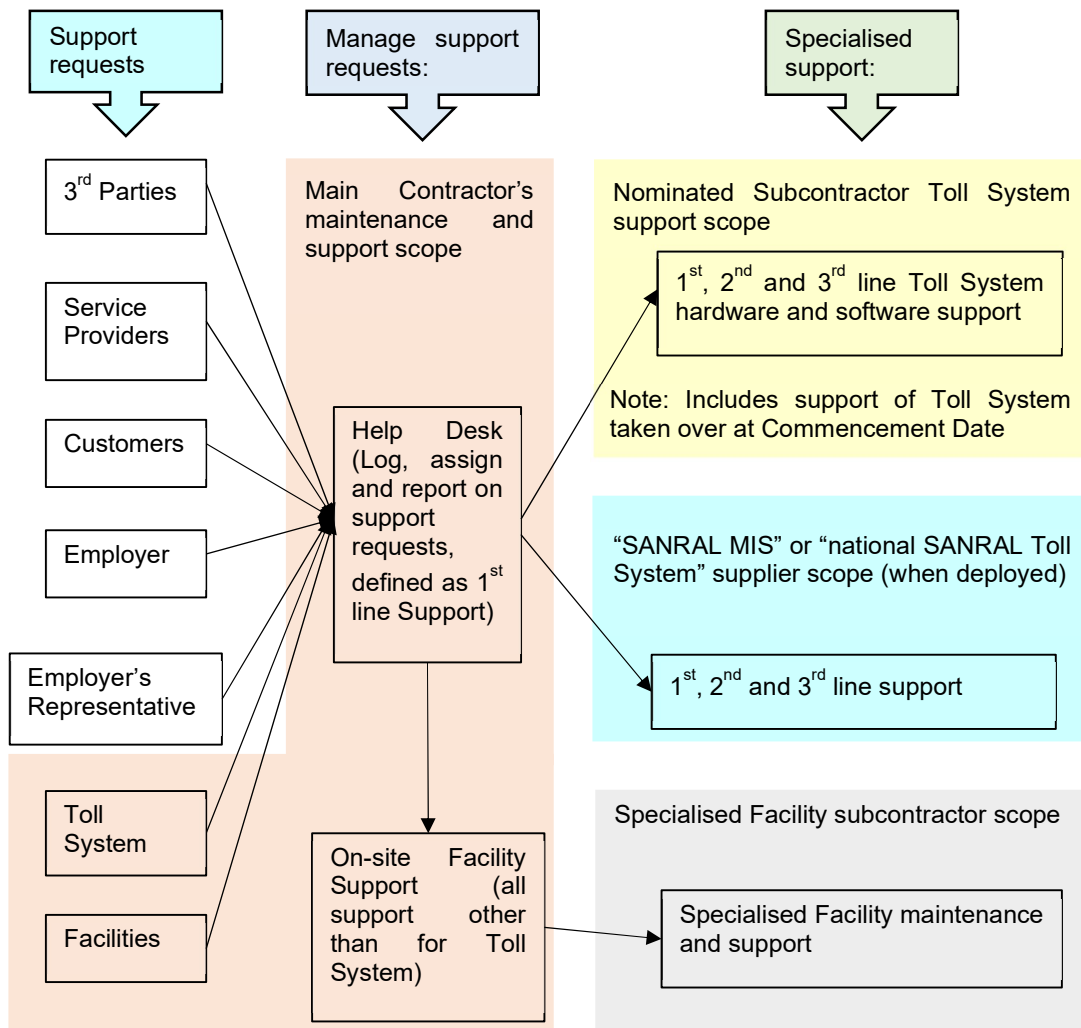
- *Road signs in dedicated ETC lanes*
- *Electrical and Mechanical works in the toll plazas*
- *Air conditioners, ventilation systems, toll booths, toll booth fixtures, and the like*

### **PS 1.2.3 Nominated Subcontractor (System Integrator)**

*The Nominated Subcontractor shall primarily be responsible for the provision and maintenance of the Toll System (inclusive of the maintenance of the existing Toll System handed over at Commencement Date) and possibly parts of the SANRAL MIS.*

*The Nominated Subcontractor shall provide the necessary personnel, spares, Test rig, and tools to maintain the Toll System, inclusive of the required 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> line maintenance and Support activities.*

*The Nominated Subcontractor shall further establish an interface to the SANRAL MIS system and be required to cooperate fully with the new SANRAL MIS Contractor appointed by the Employer, if triggered, and to provide support to this contractor. Cooperation shall include, inter-alia, continuous liaison, information and documentation transfer (where required in terms of the Contract), etc.”*



*The Nominated Subcontractor shall further be required to assist with the swap over to the SANRAL Toll System and be required to cooperate fully with the new SANRAL Toll System contractor appointed by the Employer, if triggered, and to provide support to this contractor. Cooperation shall include, inter-alia, continuous liaison, information, and documentation transfer (where required in terms of the Contract), etc.*

**PS 1.2.4 Joint Contractor and Nominated Subcontractor (System Integrator) roles**

*The Contractor shall design, execute, and complete the Works and operate the Works during the Operation Service Period. The Contractor shall ensure that the Toll System is fit for purpose.*

*The Contractor shall therefore be responsible for managing and ensuring the Nominated Subcontractor supplies and maintains the Toll System in accordance with the requirements. The Employer’s Representative has no direct contractual role with the Nominated Subcontractor (SI). The Contractor will therefore ensure that any designs, documents, procedures, specifications, programs, proposals, and test results have been verified and that any issues are corrected before submitting such to the Employer’s Representative. The Contractor shall also supervise and attend testing to ensure the veracity of tests and test results.”*

**PS2 GENERAL REQUIREMENTS**

**PS2.1.9 ESCROW Agreement**

Add the following under the main heading:

*“For any software and/or software product, provided by the Contractor, the required Escrow agreement(s) shall be concluded during the Establishment Period and for initiation of any triggered Design-Build Section and/or*

subsection. After deposit of the Escrow package, it will be verified and certified by the Contractor prior to presenting the product as compliant to the ER. Upon compliant certification by the Contractor, the product or service will be verified by agents appointed by the Employer. Full or partial deposits shall be made after successful deployment of any new version or patch of any system software. At least one full deposit shall be scheduled for and executed every two (2) years for the duration of the Operation Service Period.

An initial deposit of the current Toll System was made with the escrow agent in September 2018 and a supplement verification was performed in December 2021. The Contractor shall setup and enter into an Escrow agreement with the Employer, the Nominated Subcontractor and the Escrow Agent. The Employer shall be the only beneficiary of the Escrow Agreement, and both the Employer and the Contractor shall be able to call on the release of the Escrow, when so provided for in the terms of the agreement.

The Contractor shall be required to ensure that an Escrow agreement, signed by the Contractor, the Nominated Subcontractor, Employer and the Escrow agent, is in place and that an Escrow deposit is made and full verified, which includes compilation of source code and testing of compiled executables, by the Escrow agent, within two months after the deployment of the Toll system to all lanes. The Escrow package delivered by the Nominated Subcontractor shall include the relevant site executables and disaster recovery pack, which shall also be verified by the Escrow agent. The Escrow pack and DRP verification report shall be supplied within three (3) months of the deployment of the Toll System to all lanes.”

Add the following subclause:

**“PS2.1.11.3 Development Work Scheduling**

The minimum calibration or maintenance free period shall be three (3) months.

**Toll System Related Upgrade Installation and Certification**

The Contractor shall compile a programme (Gantt chart), defining the Contractor’s commitment. In order to comply with any triggered Design-Build Section or Subsection requirement during the contract period. This program shall include the development, upgrade, testing and verification of each component (software and hardware) to be implemented and certified as compliant by the Employer’s Representative during the upgrade and installation commissioning and verification period.

During the Design-Build Period, the Contractor is to provide agreed periodic progress reports which shall include the following:

- a) Charts and detailed descriptions of progress, including each stage of design, for each Section,
- b) Contractor’s documents, procurement, manufacture, delivery to site, construction or replacement, erection, testing, commissioning, trial operation and provision of Operation Service;
- c) Photographs showing the status of manufacture or replacement and of progress on the Site;
- d) For the manufacture or replacement of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
  - i. commencement of manufacturing,
  - ii. Contractor’s inspections,
  - iii. testing, and
  - iv. shipment and arrival on the Site;
- e) Records of Contractor’s Personnel and Equipment;
- f) Copies of quality assurance documents, test results and certificates of Materials;
- g) List of Variations and Notices;
- h) Safety statistics, including details of any hazardous incidents;
- i) Activities relating to environmental aspects and public relations; and
- j) Comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

*The progress reports should be submitted to the Employer's Representative electronically and the first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within seven (7) days after the last day of the period to which it relates. Reporting on progress shall continue until the Contractor has received the Contract Completion Certificate."*

### **PS2.3.1 Communication Infrastructure**

Add the following subclause:

*"PS2.3.1.12 The Contractor is to investigate the Wide Area Network (WAN) currently installed at all the existing mainline Toll Plazas on the N17 and upgrade and / or replace the existing WAN communication backbone, also referred to as the Primary Communication Network, from Back Office System to each toll lane/tolling point. Refer to Part C11 of Volume 4 for the summary of the description of toll system installed.*

*PS2.3.1.13 Note, the following shall apply, should any upgrades to the WAN be required:*

*The Contractor shall ensure that as a minimum CAT6 Cable is used within the boundaries of the buildings. Cable provided for any cameras or video servers between buildings shall be connected by means of Fibre Optic Cable or other technology as approved by Employer Representative which is not prone to damage caused by electrical or lightning surges. The Contractor is also to ensure that where CAT6 (or later high-speed derivatives) or coax cable is being used, such cabling be shielded and earthed at one end only or as instructed by the Contractor's surge and lightning protection specialist."*

Add the following subclause:

### **"PS2.3.5 Help Desk System & QLS**

*The Contractor shall have the Help Desk System and the Nominated Subcontractor the QLS systems upgraded, replaced, installed, implemented and tested to full compliance in this respect of the toll system by the end of the first month from the Operations Commencement Date.*

*The Contractor shall clarify any uncertainty regarding the requirements before the Commencement Date.*

*The Contractor shall ensure that the help desk is available for use at all Toll Plazas. The Contractor shall also implement a detailed and complete takeover and hand back procedure for every support request received for hardware or software related problems."*

*The Contractor shall ensure that the current Help Desk System remains functional until such time the system can be upgraded or replaced."*

### **PS2.4.2.5 Hardware Verification:**

Replace (d) with the following:

*"(d) As soon as the Contractor has received all the Hardware, workshop tools, test or standby rig and spares required for the project, the Contractor shall submit:*

- *A Bill of Quantities (BoQ) which lists all equipment with serial and asset numbers,*
- *Supplier invoices and*
- *Proof of ownership letters*

*to the Employer's Representative, together with an invite, to verify the Equipment in order to ensure that it is available on time and in accordance with the program submitted by the Contractor. The test or standby rig, workshop tools and workshop spares shall be allocated/packaged per workshop to assist with verification.*

*The Hardware verification will only be deemed successful once this has been achieved, with only minor outstanding Hardware items. Verification shall be conducted at least one (1) month prior to the scheduled start of Site deployment date of the system."*

## **2.7 TOLL SYSTEM UPGRADE REQUIREMENT**

Add the following subclause:

**“PS2.7.2 Systems existing at the Commencement Date**

*A description of the current toll system, the description of the current ISO Bank Card system and associated procedures for the existing Toll Plazas are provided in Part C11 and Part C10 of Volume 4, respectively.”*

**PS2.7.3.1 System upgrades**

Table 5-1: System upgrades

Sections	Description	Implementation required. (The list of items highlighted here is not exhaustive)
Section 1	Establishment period	No new deployment required.  The Contractor shall utilize this period to establish the necessary technical resources and acquire all sub-contracts, training, system / network user access credentials and documentation required to maintain and operate the existing Toll System provided at hand over.
Section 2	Existing compliance level: Functional Compliance with the CTROM requirements plus Establishment Upgrades (critical replacement upgrades).	The Contractor shall provide for Establishment Upgrades to the Toll System (Clause 2.7.3.2 in Book 4a). The Contractor shall maintain a high level of the current system performance by appropriate routine and corrective maintenance processes.
Section 3	The supply of a complete Toll System, including additional items detailed in V3B1. (This section runs in parallel with Section 2 and contains the following sub-sections 3.1 to 3.9)	The new deployment shall include, but not be limited to:  <ol style="list-style-type: none"> <li>1) Replace and/or upgrade the hardware and software for the complete system to comply to the requirement in Volume 2 Book 4a requirements. Hardware and software replaced in Section 2 (for critical replacement upgrades) may be utilised, but the Toll System handed over must be replaced (as described in more detail in the Toll System Description document in Volume 4 Part C11).</li> <li>2) The complete Toll System, except for triggered items and items replaced in Section 2 above, shall be replaced while the old system is maintained and supported. All relevant data shall be ported, reconciled, and closed-off by the Contractor during the upgrade. This process shall include the removal and disposal of all equipment in line with the Employer’s Disposal Policy.</li> <li>3) The current ETC OHLS’s (“e-sign”) shall be retained and integrated into the new Toll System. These OHLS shall only be replaced when it is agreed to by the Principal Employer.</li> <li>4) 6 Dedicated ETC lanes at Gosforth (4) and Dalpark (2) and 6 Switchable Dedicated ETC lanes at Trichardtsfontein (2), Leandra (2) and Ermelo (2) plazas.</li> <li>5) 4 Card Only lanes at Gosforth (2) and Dalpark (2) plazas</li> <li>6) Lane and plaza network upgrades</li> <li>7) Supply a full complement of spares, tools and a standby rig</li> <li>8) ANPR, including VLN presence detector in all lanes (if pilot is successful and if triggered).</li> <li>9) Health monitoring TCC, BOS, VGS, LSDU, DCS and PGW.</li> <li>10) Configuration management for the Toll and VGS/QLS System.</li> <li>11) Deploy the N17 OPS level server and the TCH payment gateway at the Server room of the most suitable Control Centre on the N17 Toll Road, as approved by the ER. New payment gateway and OPS level server.</li> <li>12) Manage and implement a direct fibre connection, utilizing the national SANRAL WAN where / when available at the most suitable Control Centre on the N17 Toll Road, as approved by the ER.</li> <li>13) Upgrade all lane level UPS units and batteries.</li> </ol>

Sections	Description	Implementation required. (The list of items highlighted here is not exhaustive)
		<p>14) Add external EMV contactless card readers (light and heavy vehicles) to all mixed ETC lane (if triggered).</p> <p>15) Queue line 1 system for the mainline plaza, both directions</p> <p>16) PCI level 2 implementation and certification,</p> <p>17) Upgraded WAN, firewall and associated equipment.</p> <p>18) Implementation of the basic SANRAL MIS interface (as specified)</p> <p>19) Assessment of the Toll System in terms of the national SANRAL Toll System requirements.</p> <p>20) Relocate Card and Dedicated ETC lanes for Gosforth Local Eastern Ramps (western direction).</p> <p>This Section contains sub-sections 3.1 to 3.9 defined below, but the Section itself can only be completed if the complete Toll System has been commissioned.</p>
Section 3.1	AVC/DCS:	Count and class accuracy, redundancy, TCC interface, DCS interface, ITIS submission, health monitoring, version control and KPI
Section 3.2	Dedicated ETC lane:	ETC accuracy and processing speed, TCH submission, health monitoring, version control and KPI
Section 3.3	ANPR:	Transaction framing, ANPR accuracy and capture %, ANPR TCH submission, ANPR incl. control (ANPR fail, like class fail integration), health monitoring, version control and KPI
Section 3.4	Bank card processing:	Lane level validation, Tap and go, processing speed, PCI, health monitoring, version control, Bank interface, VAT and KPI
Section 3.5	Cash processing:	Lane level process, processing speed, health monitoring, version control and KPI
Section 3.6	Discount and concessions:	Lane level process, processing speed, discrepancy handling, tariffs structure, validation list accuracy, health monitoring, version control and KPI
Section 3.7	Incident control:	Lane level process, Control room process (class/VLN fail, serious/critical mode, other), image capture, processing speed, images to TCH, health monitoring, version control and KPI
Section 3.8	VGS system:	Lane level implementation, transaction framing and video/image extraction, VGS audit/VGS clerk interface, processing speed, images to TCH, health monitoring, version control and KPI
Section 3.9	QLS and QL system:	Queue detection, Queue reporting, queue audit, Control room process and queue reporting to incident control, image capture, processing speed, health monitoring, version control and KPI
Section 4	The deployment of the SANRAL MIS. (If triggered item)	<p>The Contractor shall design, tests and implement the necessary modifications and interfaces to accommodate the SANRAL MIS.</p> <p>The SANRAL MIS requirements, specifications and test application will be issued to the Contractor at least 6 months before the commencement completion of this Section.</p> <p>The deployment shall include the full 2010 CTROM requirements, as amended by V3B1 and adjusted by the implementation of the SANRAL MIS.</p> <p>The deployment shall include a six (6) week pilot phase during which operational testing shall be conducted for the SANRAL MIS.</p> <p>This scope shall include the work required by the Contractor to achieve revised compliance certification.</p>
Section 5	The deployment of the national SANRAL Toll System. (If triggered item)	<p>The Contractor shall design, tests and implement the necessary modifications and interfaces to accommodate the national SANRAL Toll System during parallel operations (Pilot phase and initial roll-out).</p> <p>The national SANRAL Toll System requirements, specifications and test application will be issued to the Contractor at least 8 months before the completion of this</p>

Sections	Description	Implementation required. (The list of items highlighted here is not exhaustive)
		<p>Section.</p> <p>The deployment shall include the full 2010 CTROM requirements, as amended by V3B1 and adjusted by the implementation of the SANRAL toll system.</p> <p>The deployment shall include a three (3) month pilot (Parallel operations) and trail operations phase during which operational testing shall be conducted for the SANRAL Toll System.</p> <p>This scope shall include the time required by the Contractor to achieve revised compliance certification.</p>

Note: The duration of the different Sections is specified in clause C1.2.3 APPENDIX 1 TO CONTRACT DATA: SECTION DATA of PART C1.

### PS2.7.3.2 Establishment Upgrades:

Add the following below subclause (l)

- (m) All servers older than 5 years, including DVR and associated storage,*
- (n) All lane and AVC controller components, older than 5 years, including motherboards, CPU, RAM, serial cards, I/O cards, hard drives, PSU, and lightning, surge, and overvoltage protectors.*
- (o) All lane VDU's and Toll Collector terminals older than 5 years.*
- (p) Upgrade all Microsoft OS to Windows 11, Windows server 19 or later and SQL server 2019 and replace incompatible hardware.*
- (q) Replace all non-IP cameras, and associated network infrastructure, with POE IP cameras. Refocus and aim existing cameras to identify critical replacements.*
- (r) Provide all depleted spares for the Toll System handed over.*
- (s) Resolve cabling issues to queue length camera on mast in lane 29RW at Gosforth Mainline Plaza.*
- (t) Develop an interim solution or rearrangement of the Tipro keyboards if spares cannot be sourced.*
- (u) Fix all cables where the monitor's colour is affected and replace monitors at Gosforth and Dalpark Toll Plazas.*
- (v) All booms should be serviced, locked and boom arms provided. Non-functional booms should be replaced immediately.*
- (w) Restore the power cable to Gosforth Eastern Ramps Lane 29RW.*
- (x) Remove remnants of entry booms and clean-up the islands and lane area.*
- (y) Replace AVC sensors based on the loop and PAD report until complete AVC replacements can be done. (Part of Phase 1 system upgrade). Separate loop detectors per loop should be implemented for Ermelo, Trichardtsfontein and Leandra Toll Plazas.*
- (z) Test all panic buttons and replace non-functional panic buttons.*
- (aa) Remove redundant equipment in the Control room, tunnel and lane/island areas, including unused network cabinets.*



- (bb) *Replace the UPS batteries for all the BOS Servers, network equipment located in the tunnels (not plaza UPS), AVCs in the lanes, cameras, QLS and VGS.*
- (cc) *Resolve the current issues or replace the fibre optic links for Gosforth Mainline to Gosforth West Ramp Plazas, Dalpark to Denne Road Ramp Plazas, and Leandra to Leandra Ramp Plazas.*
- (dd) *Provide UPSs for each of the Lane Controllers at Denne Road to ensure uninterrupted lane functionality while the UPS (and water issues) are resolved at Denne Road.*

*The Contractor shall ensure that the hardware provides an open platform that can accommodate virtualization, various operating systems and conform to open standards. All hardware shall be submitted to the ER for approval and distribution to SANRAL to confirm compatibility with the SANRAL MIS and SANRAL Toll System.”*

*The Contractor shall compile a critical replacement programme to ensure urgent replacements are prioritised to ensure the Toll System handed over functions reliably until the replacement system is installed. From the Asset Register information, the status of equipment, its age and the remaining life should be considered for urgent replacements. This critical replacement programme should ensure the Toll System meets the performance requirements.*

*Due to the dependency of the Toll System software on the Operating System software version and support and the limitations of the incumbent system to upgrade to the latest platforms, the Contractor should provide for specialised resources to perform maintenance and support of the current Toll System. This includes the OS software for the lane system, AVC, MIS, LSDU, DCS, VGS, QLS, firewall workstation, anti-virus workstation, Admin workstations, MIS workstations and technician workstations.”*

### **PS3 CONVENTIONAL AND HYBRID TOLL PLAZA LANE SYSTEM REQUIREMENTS**

#### **PS3.3 Toll Lane Specific Hardware and Software Requirements**

##### **PS3.1.1.2**

Add the following sub-clause:

“

*(h) Dedicated Card Lane”*

##### **PS3.3.2 Toll Collector Computer (TCC)**

###### **PS3.3.2.1**

Delete: *” and shall be powder coated matt black on the inside to aid in heat absorption”.*

Add the following subclauses:

###### **“PS3.3.2.3**

*Where lanes are designed to function in either mixed mode or dedicated ETC mode, the switching between mixed and ETC only lane operations should be possible without shutting down the lane and changing the configuration of hardware/software. The lane mode and the available payment methods must be indicated by means of the combination of OHLS’s as specified in Volume 2 Book 5.”*

###### **“PS3.3.2.4**

*Each TCC and peripheral equipment required to continue the operational tolling activities needs to be powered by an independent Uninterrupted Power Supply (UPS) with sufficient reserve capacity to power the TCC and TCT for a minimum of four (4) hours in the event of a failure of the plaza UPS. The exit barrier(s), traffic lights and siren need not be powered by this independent TCC UPS. Depending on the lane specific characteristic, the ER may consider and approve alternative battery backup solution combining the AVC, TCC, TCT and peripheral lane equipment of maximum three (3) toll lanes to a single power backup source. Failure of one (1) power backup source shall not result in failure of all the toll lanes at any virtual toll plaza.*

*Ramp Toll Plazas with limited lane processing capacity shall be evaluated on a feasibility and security evaluation basis.”*

### **PS3.3.5 Card Reader Device (CRD)**

Replace PS3.3.5.2 with the following Sub-Clauses, further to the **EMV Integrated Circuit Card Requirements**:

#### **“PS3.3.5.2**

*Additional Touch&Go EMV readers should be integrated into the lane system and installed outside each toll booth to allow the Road User to tap his/her own bank card.*

*The Touch&Go functionality should be configured to allow tap transactions without requiring a PIN. For mixed lanes with a toll booth, the CRD (Card Reader Device) inside the toll booth should function as a back-up if the tap function does not work or the Road User elects to swipe his/her bank card. For dedicated card lanes the swipe and tap card reader abilities might be integrated into a single Card Reader Device, ensuring a back-up CRD functionality if the tap function does not work.*

*External readers (mounted outside the booth), shall be of a rugged design capable of handling all ambient weather conditions. The readers shall be positioned to allow Users of both Heavy and Light Vehicles to use their cards. The card readers shall be fitted with a clear Stainless-steel back-plate with directions and/or pictograms approved by the Employer.*

*External Card Readers enclosures should display signage for Touch&Go and swipe functionality, including the card types accepted.*

*External EMV card readers shall, as a minimum, be required to:*

- (a) Meet the ISO standard requirements,*
- (b) Exceed 1 million card reads,*
- (c) Provide a bad card read incident / alarm. It shall also indicate the card reader ID, and*
- (d) Meet the requirements of the Employer Merchant agreements with Banks, where applicable.”*

### **PS3.3.6 Panic Button**

After the existing paragraph add the following:

*“The panic button alarm functionality shall in no way be effected by any toll system failures, including LAN failures.”*

### **PS3.3.8 Toll Booth Surveillance Camera**

This clause to be modified to read as follows:

*“The Contractor shall install, operate and maintain a tamper proof dome or similar camera in each toll booth for surveillance purposes. The camera shall have a wide dynamic range capability in order to accommodate the glare through the toll booth windows. The continuous recording of this camera images shall be stored on the NVRs/DVRs at 10fps and kept for a minimum period of three (3) months.”*

#### **PS3.3.8.1**

This clause to be modified to read as follows:

*“The video and the audio recordings from the toll booth surveillance camera shall be accessible remotely by the Contractor and Employer’s Representative for post facto audit purposes on an Ad Hoc basis.”*

Add the following new subclauses:

#### **”PS3.3.10 Dedicated ETC Lane**

*The Dedicated ETC toll lane shall, as a minimum, comply with the following requirements:*

*Within the guidelines of the ETC specification as described in Volume 2 Book 5, a Dedicated ETC lane shall be operated without any toll collector management or intervention required. Under normal operational conditions, no manual vehicle classification shall take place in these lanes and the User shall be granted passage through the toll lane with the least obstruction or delay during and after validation of the tag credentials. The automated control shall prohibit unauthorised vehicle passage through such toll lanes.*

*The lay-out and pictograms to be used (Red-cross, green arrow and e-sign) will be finalised before or during the design phase (V2B4a clause 2.4.2.2)*

*Under abnormal vehicle processing conditions, the Employer's Representative may require the Contractor to process non-tag vehicles through these Dedicated ETC lanes, requiring manual vehicle classification - see further requirements referenced in this regard.*

*The Contractor shall ensure that:*

- a) Functionality is provided for a supervisor to take responsibility of transactions being processed. The functionality shall allow for the responsible Supervisor to remotely login and logout from the lane and to open and close the lane remotely by means of controlling the OHLS combination. The Supervisory staff shall be capable of opening the exit boom remotely in the event of an emergency. The same functionality shall be available from within the lane area, after gaining access to the secure cabinet containing the TCC and TCT equipment, similar to that found in a Mixed/Manual ETC Lane;*
- b) The TCC shall monitor the tag reader, other lane processes and peripherals components continuously. If any reader or peripheral component or process failure is detected, the system shall report such status in real time to the Supervisory personnel. This shall include AVC error or fail conditions. Where the AVC is in any critical fault/error state simultaneously, the TCC shall evaluate the severity of any detected failure or failures in terms of the system's ability to maintain its accurate and correct functioning. In the event where the lane is not capable of performing to meet the minimum required integrity levels as required, the system will automatically change the OHLS state to a closed lane state. The OHLS will be turned to the RED "X" and the amber "e" turned off. The software shall automatically follow-up the error or fault state to ensure the Supervisor takes the required corrective action immediately and in order to address any vehicles which might be stuck in such toll lane. The Supervisor shall be capable to override the boom status to the open state in association with proper transaction audit controls and procedure ensuring complete recording of such passage, with no financial risk is passed to the Employer. The Supervisor shall be provided the required tools to resolve the problem in the lane remotely. In the event of a vehicle being present in the lane during the time of the failure, the operator shall ensure that the vehicle is processed using one of the following methods outlined in Subclause 6a) below, (Alternate tag transaction processing methods). The Contractor shall ensure that a legal and valid user, be granted a passage, with the least possible inconvenience caused to the motorist / User;*
- c) Tags are not read prematurely while another vehicle(s) is/are still passing through the lane. However, if such a scenario occurs the system shall be able to track, stack/queue and associate and link the correct tag and VLN information with the correct physical vehicle as recorded in the system transaction record. As each vehicle or vehicles passes through the Dedicated ETC Lane and the AVC area, removing such unique vehicle from the system transaction queue;*
- d) The Contractor shall ensure the accurate processing and associated AVC classification, of each vehicle, including vehicles being processed, in a queue, be accurately recorded and transmitted to the Back Office like any other transaction, when concluded. The Dedicated ETC toll lane/s shall be capable of processing any vehicle in accordance with the vehicle characteristics and associated vehicle classes, as published in the Government Gazette from time to time. For safety reasons it may be required that specific lanes be equipped with height restriction structures in order to avoid large heavy vehicles to enter such specific toll lanes. The presence of any such height or other restriction shall in no way alter any detection and classification requirements of the AVC;*
- e) The above is supported by the required logic on the TCC and AVC to accurately detect, classify and reconcile individual vehicle units and their associated axles when exiting the Dedicated ETC toll lane area. The system shall contain sufficient automated error handling in order to manage incoming and exiting vehicle transaction with discrepancies on an ongoing basis without human supervision or maintenance intervention;*

- f) *The tag reader does not detect tags from adjacent toll lanes and the local DSRC message shall not interfere with the data communications in any adjacent lane/s. (The objective being the restriction of RF spillage);*
- g) *If multiple tags exist in the same vehicle only one tag (or the first valid tag) is used to process the vehicle's passage transaction. Multiple tags detected needs to be reported to the supervisory staff in order to validate the period verifying that vehicles were not missed or additional transactions recorded, where these were not physical vehicles associated with the additional tag read;*
- h) *While the TCC and AVC keeps track of vehicles passing through the lane in a forward direction, the system logic shall also take care of any vehicle (or part thereof) reversing out of the toll lane or driving into the active lane in a reverse direction. Given the close proximity of typically two axle counters in the entry zone of the lane, the timing of axle and other vehicle presence signals should indicate whether the vehicle, which was busy passing through this entry zone, was moving forward or in reverse direction. The system shall ensure that pending transactions be recorded, although "cancelled" as financial transactions, as and when systematically confirmed that it will not be financially processed. Buffers are cleared and all pass back timers removed as the vehicle units reverse out of the entry zone. This would imply that should an invalid tag-User enter the lane and valid tag-Users follow, the valid tags, will not enable the invalid Tag-User to pass through the lane and similarly, as vehicles reverse out of the lane, the valid Tag-Users will immediately be allowed to enter the same lane and be processed successfully after the invalid Tag-User was removed from the lane and system queue.*
- i) *If a tag reader in the working state fails to read a tag due to a tag failure, or invalid tag, or false or failed tag, or no tag present, the vehicle is processed using one of the following methods outlined in Clause 6a) below (Alternative processing methods). The Supervisor shall notify the road user of the faulty or invalid tag and shall direct him to the next toll lane to conclude a non-tag toll passage transaction as well as to the nearest service centre where the problem can be rectified. This is performed through the messaging on the UFD, the Traffic Light not turning green and the intercom, where installed;*
- j) *The tolling system shall record and automatically report all abnormal tag or other identifier processing (Payment Mechanism Identifiers) identified in order to force the Contractor to resolve the cause of transaction processing errors. The Contractor is to systematically follow-up problem transactions, account holders and problem identifiers in order to eliminate vehicle processing delays, causing a reduction in processing capacity;*
- k) *All relevant video recordings and image material are captured and accurately associated/linked to the correct vehicle passing through the toll lane and the tag transaction record, as stated in Volume 2 Book 5, in addition to the standard manual transaction records. Quality front side and number plate (ANPR camera) images are required as per the TA/TCH interface "Request Image" function;*
- l) *The Dedicated toll lane shall not facilitate the printing of receipts in the lane since all Users passing through these lanes would be registered Account holder Users who could obtain transaction details and TAX-Invoices via the Service Centres or web interface. The exception would be in the event when the toll lanes are manned, under the abnormal vehicle processing procedures;*
- m) *The Road User does not have the ability to communicate with the remotely stationed Supervisor or with the service centre without leaving his/her vehicle. Road users are required to reverse out of the Dedicated ETC lane and seek assistance in a manned lane;*
- n) *The manual processing of a tag transaction can be done remotely. This will require a live interface which will allow for the remote capturing of VLN data and verification against the TCH Validation List to conclude or reject such passage transaction. The Contractor shall ensure that such facility is active and available to remote supervisory personnel at all times, in order to facilitate the resolve of any problem in any lane without any delay;*
- o) *The Supervisor has the ability to remotely view the vehicles license number plates from the front and the rear;*
- p) *The Road User does not have the capability to scan his own tag in the lane without having to leave his vehicle, or move to a manned lane, to verify the tag and conclude the toll transaction in an alternative manner unless otherwise described in Volume 2 Book 5. ;*
- q) *The Supervisor has the ability to remotely reset the lane if required and to clear all buffers, including queuing vehicle data buffers. If the reset of such is performed in the lane area directly on the TCC, such action shall be restricted to authorised personnel. Such activities shall be logged and monitored to ensure no vehicles pass through such lane while the system is not fully operational. Such facility is typically provided through a high-grade tamper proof security key switch;*

- r) *The Dedicated ETC toll lane functionality and efficiency shall be verified by means of verifying the vehicle processing capability by processing mixed vehicle class combinations through the lane at a speed of 60km/h and continued queuing conditions. This ability shall include the safe and accurate functioning of a high-speed exit boom/barrier, with the ability to open and close in 0.6 seconds. The exit boom/barrier will not be required to close on vehicles following too closely (tail gating), avoiding damage. However, the Contractor should install an additional traffic light, alarm bell and amber strobe light, upstream from the exit boom in order to warn and stop any User entering the Dedicated ETC toll lane where the passage transactions could not be processed successfully. The lane shall be required to accurately, separate, detect, queue, record, validate and exchange the required data elements, pass back the acknowledgement to the Tag (MMI Beep Message) and have the AVC classify and close off or conclude the passage transactions on a continuous basis as vehicles pass through the lane. The Contractor shall maintain a Dedicated ETC processing accuracy of better than 98% for all valid, at the time of the transaction, tags that enter the Dedicated ETC lane, verified via the registered VLN, measured over a sample size of 5 000 valid tags. The Contractor shall implement a Dedicated ETC lane monitoring and reporting tool that uses the ANPR cameras in zone one (1) and three (3) to identify ETC processing accuracy deterioration below 98% within three days. The monitoring tool shall also report on any un-characteristic (above the benchmark) increase, based on percentage of passages (moving average over a 3 to 5 day period), in the percentage of vehicles reversing out of the lane. Such an increase may be point to a possible hardware deterioration e.g. reader alignment or sensor calibration or blockage. Accuracy problems shall be reported to the lane health monitoring system. The dedicated lane monitoring tool shall also report excessive, more than 4 hours, down time (lane not open for traffic and/or not processing traffic) of dedicated lanes to the health monitoring tools;*
- s) *The design capability of the complete Dedicated ETC toll lane shall be based on the required vehicle processing ability associated with an individual or stream of vehicles passing through the toll lane at 80km/h, without any failures detected. Although the system shall be required to operate at the above speed it might be required that the Contractor enforce speed reduction in such lane. Such forced speed reduction facility shall be made available by enabling the Contractor to configure the exit boom opening time or delay or alternatively a tag processing delay.*
- t) *The Dedicated ETC toll lane functionality shall be capable of recording all the required transaction/data elements as required associated with any Violation or Run-Through passage, in order to activate the required follow-up actions in order to charge or prosecute such User through the appropriate channels, including the legal requirements. Also see VPC requirements for Opt-In contracts which may require different image recording requirements.”*

NB: Cross Reference note: The Contractor shall, at all times, ensure that any User who approached a Dedicated ETC toll lane, be able to process a tag transaction through a toll lane immediately adjacent to the Dedicated ETC toll lane in the event of such lane failing. This requirement is a safety critical requirement and shall be adhered to at all times. It shall never be allowed that any User would need to cross any active or open toll lane when re-directed to another tag transaction processing toll lane. Failure to provide this service to the Users shall result in an immediate penalty for each vehicle required to any other than the adjacent toll lane. (Refer Volume 3 Book 1.) The reason for the above is to ensure that Users do not need to cross the Toll Plaza approach area in the event where any Dedicated ETC toll lane is closed to traffic.

### **PS3.3.11 Dedicated ETC toll lane equipment configuration guidelines**

*“The typical Dedicated ETC toll lane consists of the following:*

- a) *Longer civil lane than that employed for Manual or Mixed/Manual ETC toll lanes;*
- b) *The lane is equipped with typically three (3) operational zones:*
- i. *An entry detection, reader and transaction verification zone;*
  - ii. *A central queuing zone and;*
  - iii. *An exit, AVC and transaction reconciliation zone.*
- c) ***The entry detection, reader and transaction verification zone (Zone 1):*** *This is a traffic calming and speed reduction zone which facilitate the initial vehicle presence detection, direction of travel and the axle count of the single vehicle unit. At the same time the DSRC communication is initiated and concluded before the vehicle exits the reading zone. Typically, a double light curtain and double axle counter, directly under the light curtains provide the system with presence, direction and axle count data for each unit entering the zone. A DSRC reader is typically installed from the canopy to establish the correct reading zone around the sensors below at road pavement level.*

- d) **The central queuing zone (Zone 2):** This zone provides both vehicle storage capacity before reaching the exit boom/barrier as well as providing the vehicle sufficient room to safely stop before the exit barrier in the event of the vehicle passage being refused. This area is also employed to accommodate an additional traffic light, an electronic alarm bell/siren and strobe warning light/s. The traffic light goes green during successful transaction processing and the alarm bell plus strobe light remains off. However, in the event where a passage transaction is refused, this upstream traffic light will turn red, the strobe light flash to warn the User or users of a transaction which is being rejected or that of a vehicle ahead is being rejected. The UFD will also change reflecting the fault or error state with a meaningful error message or instruction. The exit barrier/boom will allow the valid transactions and associated vehicles to pass through the lane. The barrier will drop, if safe, to stop the rejected transaction passage vehicle. Typically, no monitoring of vehicle's presence or direction is performed in this area.
- e) **The exit, AVC and reconciliation zone (Zone 3):** This zone consists of the exit barrier/boom, AVC, Traffic Light and UFD. Given the requirement to exactly separate individual vehicles, light curtains are typically employed to determine vehicle presence, direction and axle counters for direction. Accurate axle counts in this area is important in order to reconcile vehicles that entered the lane and those which exit the lane. The logic of the system should allow for the management of error handling and axle count differences. In order to provide some degree of redundancy, an additional DSRC reader is also installed in this area, identical to that of a standard Mixed toll lane. This allows the Contractor to convert such Dedicated ETC toll lane to a "standard" Mixed/Manual ETC toll lane (with or without vehicle queuing facility), should the entry beacon fail. ANPR cameras will be installed in zone 1 and 3 and will be triggered by the light curtain to ensure optimal ANPR capturing for vehicles entering and exiting the DETC lane. The ANPR value captured by the exit zone ANPR camera will be link and verified against the VLN of the associated tag user of the vehicle exiting the lane. The DETC lane will generate an incident to report cases where users without tags, users with invalid tags, or with valid tags with the wrong vehicle is exiting the DETC lane.
- f) The reconciliation process also allows for the triggering of the alarm bell and strobe light/s in the event where vehicles enter the AVC area without a valid passage transaction being processed for the associated vehicle. Such events are managed in accordance with violation or Run-Through passage procedures since the Contractor remains responsible for toll income related to such Run-Through Violations.
- g) All Dedicated ETC lanes at Toll Plazas on the N17 Toll Road shall be configured as "Switchable ETC toll lanes". (The Main Contractor may use the lane as a Dedicated ETC toll lane or as a Mixed/Manual ETC toll lane or as instructed by the ER or the Employer) it shall be required that the "Exit, reconciliation zone be installed exactly the same as that configuration used in Mixed/Manual ETC toll lanes, except for the deployment of light curtains or similar device which is capable of accurately detecting and separating vehicle units. Whether a toll booth is installed or not, the Contractor could station a toll collector in the island area and instantly have additional vehicle processing capacity available, accommodating all other Payment Mechanisms. (Refer to Volume 3 Book 1 for further details and instructions)."

#### **PS3.3.12 General**

- a) All Sensors installed in the Dedicated ETC toll lane carry the monitoring and redundancy requirements as applicable to other AVC sensors. However, the Contractor should take cognisance of the financial and penalty risks associated with the failure of any sensor in the Dedicated ETC toll lane. It is critical to implement multiple levels of redundancy to limit or eliminate system deterioration and downtime, and to restrict/limit maintenance. For safety and operational reasons maintenance should be restricted to off-peak periods when the Contractor is not at risk of being penalised for both downtime, Vehicle Processing requirements and/or possibly vehicle queues at the Toll Plaza.
- b) The Contractor shall at all times ensure the correct and automated functioning of the combined OHLs. The Green Arrow and Red Cross shall be located to the left and the amber "e" on the right of the lane centre line, on the Toll Plaza canopy above such lane. For Dedicated ETC toll lane Operations ONLY the amber "e" shall be illuminated while such lane is open to tag passage transaction processing. In the event where the lane is operated as a Mixed/Manual ETC toll lane, both the Green Arrow and the amber "e" shall be illuminated while such lane is operational. While any Mixed/Manual ETC or Dedicated ETC toll lane is in a fault state or in the closed state, ONLY the Red Cross shall be illuminated. Refer to Volume 2 Book 5 for pictograms of the OHLs's.

#### **PS3.3.13 Alternative vehicle and transaction processing methodologies**

- a) Notwithstanding the possible requirements to process tag transactions manually as noted elsewhere, the Dedicated ETC toll Lane shall facilitate the manual processing of tag transactions or other Payment Mechanisms in the event of a read or related failure. The lane shall be equipped with a secure non-

ferritic, 304 stainless steel enclosure to accommodate a TCT for use in the event of abnormal processing conditions. The Contractor shall make it possible to process alternative Payment Mechanisms if the tag cannot be processed and/or the vehicle cannot be removed from the lane. It should be noted that such abnormal processing of passages needs to be limited and avoided at all times, unless instructed by the ER or the Employers to do otherwise.

#### **PS3.3.14 Dedicated ETC Toll Lane Equipment and Configuration Option**

- a) *Given the real time and active monitoring of the Dedicated ETC toll lane TCC by the Back Office System User Interface, and the real time monitoring of the AVC by the DCS, and the known error/failure rate of the serial communications between the conventional AVCs and TCCs, the Contractor is encouraged to run the Dedicated ETC TCC lane controller application and the AVC application on the same Controller, pending the approval of the Employer's Representative based on a sound technical proposal to maintain and guarantee 100% up-time and secure continuous error free vehicle processing capabilities by such Combined Lane Controller. Should such option be considered, the Lane Controller shall be required to maintain two (2) independent data communication channels, one from the TCC application to the Back Office and the other from the AVC application to the DCS.*
- b) *Dedicated ETC toll lanes are required to be operated, in a reversible manner, without the loss of any management and control characteristics required. See required reversible lanes at the N17 Toll Plaza in Volume 4, A2 Lane layouts.*
- c) *It is required to provide the option to operate a "Switchable" Dedicated ETC toll lane as a Mixed/Manual toll lane. In this configuration the TCC in such lane will be located in a toll booth and the only difference to that of a permanent Mixed/Manual ETC toll lane shall be that these lanes shall be "Switchable" between processing tag transactions without toll collector intervention – no MVC Classification before processing the tag transaction. This opposed to the ability of the TCC to switch to the "Mixed/Manual toll lane" functionality, requiring the forced manual vehicle classification by the Toll Collector on duty, before the tag transaction could be processed. The lane in this "Mixed/Manual ETC Lane" state shall be capable of processing all other payment mechanisms as applicable in a standard Mixed/Manual ETC toll lane. The recorded toll transactions shall indicate whether such toll transactions carry a Manual Vehicle Classification or an Automated Vehicle Class, applied by the Toll System."*
- d) *The current "Tag-Only or Dedicated ETC" toll lanes, deployed at the N17 Toll Plazas, do not meet the requirements and are the same configuration as Mixed/Manual ETC Toll Lanes with the exception of the use of an "Auto-class" function, allowing the toll lane to operate without any Toll Collector present, allowing tags to be processed automatically. Given the above, these lanes do not meet the vehicle/tag processing speed defined for Dedicated ETC toll lanes.*
- e) *There is high speed Dedicated ETC (Tag-Only or Dedicated ETC) toll lanes installed at*
  - *Gosforth Mainline Toll Plaza (2 lanes)*
  - *Gosforth Eastern Ramp Toll Plaza (2 lanes)*
  - *Dalpark Mainline Toll Plaza (2 lanes)*
- f) *There is Dedicated ETC combined with Mixed/Manual toll lanes installed at:*
  - *Ermelo Toll Plaza (2 lanes)*
  - *Leandra Toll Plaza (2 lanes)*
  - *Trichardtsfontein Toll Plaza (2 lanes)*
- g) *Refer to Volume 4, C7 lane layouts for the location of all dedicated ETC lanes. The installed mixed Manual/ETC lanes are capable to be configured to perform an "Automated/Manual Vehicle classification" allowing the toll lane to be operated in a pseudo or 'slow' Dedicated ETC lane mode, without the extended zone configuration defined in clause 3.3.11 above.*
- h) *Where remnants of previous installations are still left in the lane area, it should be removed and all ducting and access points should be closed off with watertight covers, including, but not limited to, external card reader enclosures and entry booms."*

Add the following subclause :

#### **"PS3.3.15 Dedicated Card Lanes**

**PS3.3.15.1** It is required to provide dedicated card toll lanes at Gosforth Mainline Eastern Ramp (East and West bound) and Dalpark Mainline (East and West bound) Toll Plazas. In this lane configuration the TCC will be installed in an enclosure on the lane island with no toll booth. The equipment normally installed for the Toll Collector's use, will not be required, including panic button, receipt printer, GUI, TCT, Toll booth surveillance camera, lane mode board. The SCR/EMVCO card reader and intercom will be installed in weatherproof enclosures within easy reachable height for light vehicle drivers. Refer to section PS3.3.5.2 for EMVCO card requirements.

**PS3.3.15.2** The dedicated card Toll Lanes shall process card transactions without toll collector intervention, a default Class 2 classification shall be populated before processing the card transaction. The lane must be switchable to a Dedicated ETC Toll Lane. The recorded toll transactions shall indicate whether such toll transactions carry a Manual Vehicle Classification or an Automated Vehicle Class, applied by the Toll System for defining the accurate Toll Tariff for such Toll Transaction."

**PS3.3.15.3** There are currently dedicated card Toll lanes installed at:  
a) Gosforth Eastern Ramp (East and West bound) Toll Plaza, and  
b) Dalpark Mainline (East and West bound) Toll Plaza."

Refer to Volume 4, C7 lane layouts for the current location and reconfigured location of the Dedicated Card Toll lanes."

#### **PS3.4.6 Ramp/Mainline Swapping**

Any additional cost for software and / or hardware that is required to meet the ramp/mainline swapping functionality must be included in the Schedule of Payment/Cost Matrix. The Contractor is to note, that the Principal Employer may only trigger ramp/mainline swapping functionality on one (1) direction in a Toll Plaza or both.

#### **PS 3.4.8. Automatic Number plate recognition**

Replace clause with:

**3.4.8.1** *The Contractor shall implement ANPR in every lane.*

*The ANPR system shall be utilised whereby front Vehicle Licence Numbers images will be captured for each vehicle passage, in addition to the requirement for Scene Image/s captured by the VGS.*

- 1. An additional ANPR camera will be required for Zone 1 of the DETC lanes. The Zone 1 camera will be used for the DETC entry detection and the Zone 2 for transaction reconciliation.*
- 2. The VLN captured by the ANPR and ANPR confidence level shall be stored for every transaction. A VLN value of "No VLN" and a ANPR confidence level 0 shall be stored for all transactions for which, for whatever reason, no ANPR VLN is available.*
- 3. The ANPR or OCR engine/s shall reside with the ANPR camera. Additional ANPR may be done centrally, at BOS level, to improve the ANPR accuracy.*
- 4. The ANPR camera shall include infra-red illumination to allow for the accurate capturing of VLN under low light conditions.*
- 5. The ANPR camera shall be linked to a trigger device. The trigger device shall consistently detect the arrival of a new vehicle and shall trigger when the VLN reaches the optimal ANPR capturing location. This shall ensure the accurate capturing of the VLN for vehicles at the pay-point or in the case of Mixed or Dedicated ETC lanes, the ETC reading zone. The detection device shall accurately trigger the ANPR camera even under high traffic conditions. The Contractor shall not consider trigger devices that cannot accurately separate vehicles.*

**3.4.8.2** *The lane ANPR camera shall utilise advanced image processing techniques to enhance the ANPR process accuracy and that will minimise operator intervention. The ANPR process may use the VLN associated with registered identifiers, including Tags, Bank cards and TA cards, to improve the accuracy and speed of the ANPR process. The Contractor shall disclose the design, the algorithm/process used by the ANPR system when using registered VLN values to assist with determining the ANPR VLN to the ER, for approval.*



3.4.8.3 The ANPR system shall capture Vehicle Licence Numbers images and process them to establish the VLN for every transaction. The image used by the ANPR camera/system to determine the VLN shall be kept at BOS level, accessible via user interface that allow easy search, retrieval and reporting (Hard or soft copy), along with the side and front view images as follows:

Item	Description	Images to be stored	Period to be stored measured from time of associated vehicle passage
1)	<p>VLN mismatches: Transaction where the registered VLN (TCH Validation list, local and frequent user account holder) and ANPR VLN do not match.</p> <p>The images associated with TCH validation list mismatches may be required to be transmitted to the TCH via the TCH interface, on request from the TCH.</p>	<p>VGS front view and side view images. The VGS images</p> <p>ANPR images used to determine VLN (Number plate and front view)</p>	6-month storage as part of the system active data
2)	Violation: This includes all passages for which no payments were received	<p>VGS front view and side view images. The VGS images.</p> <p>ANPR images used to determine VLN (Number plate and front view)</p>	6-month storage as part of the system active data
3)	Exempt / free passage Transaction	VGS front view and side view images. The VGS images ANPR images used to determine VLN (Number plate and front view)	6-month storage as part of the system active data
4)	ETC transactions	VGS front view and side view images. The VGS images ANPR images used to determine VLN (Number plate and front view)	6-month storage as part of the system active data
5)	All other transactions	ANPR images used to determine VLN (Number plate and front view)	2 weeks as part of the system active data

3.4.8.4 ANPR and/or OCR engine, shall automatically populate the front ANPR processed Vehicle Licence Number field of the Transaction Record (it is envisaged that the association of the Transaction Record will be performed at the toll collector computer) for all the transactions, and shall the ANPR confidence level.

3.4.8.5 The criteria for correctly mounted and designed South African Vehicle License Number (VLN) plates shall be in accordance with South African Legislation. Legislation on the construction and use of VLN plates can inter alia be found in the National Road Traffic Act 1996 (Act No. 93 of 1996) and the National Road Traffic Regulations (1999). Applicable specifications include SANS 1116-1 Parts 1 to 4 (Retro-reflective number plates for motor vehicles).

3.4.8.6 A VLN plate is classified as 'readable' for the purposes of performance measurement if it is readable to a human enumerator. The following are examples of plates that would not be classified as readable:

- a) One or more characters obscured by a bullbar,
- b) One or more characters obscured by dirt or mud,
- c) A plate that is damaged such one or more characters cannot be enumerated, or
- d) A plate that is missing, etc.

3.4.8.7 Consequently, cameras that are not in focus, tend to over-expose images, are misaligned, not triggered at the right moment, suffer from headlamp glare or the effects of weather or direct sunlight, vehicle queues, are not of sufficient quality and resolution, would not be sufficient grounds for a plate to be considered unreadable at the time of performance measurement.

3.4.8.8 The ANPR processes shall have the capability to interpret all existing and future VLN plate alphanumeric character sets and VLN plate formats for vehicles registered in South Africa.

3.4.8.9 The ANPR processes shall have the capability to interpret all existing VLN plate alphanumeric character sets for foreign vehicles, including vehicles registered in Zimbabwe, Eswatini, Mozambique, Botswana, Namibia and Lesotho. The ANPR process shall report a confidence level and whether the plate is national or foreign.

#### **3.4.8.10 ANPR ACCURACY AND MONITORING**

3.4.8.10.1 The ANPR system must facilitate, along with the image quality and OCR Software or OCR engine, an overall accuracy rate as listed below under all operating conditions, or if such accuracies are specified within the Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2 Book 6a), then according to those accuracies.

3.4.8.10.2 For the purpose of this specification, the following terms, and accuracies, based on a sample size of more than 10 000 passages (per lane or group of lanes) shall be defined as follows:

- a) "Trigger rate" is the proportion of vehicles (whether or not the Vehicle Licence Number is readable) that pass through the ANPR capture zone that result in a Vehicle Licence Number image i.e. the OCR result may be wrong but at least the Vehicle Licence Number is completely visible and the camera was not triggered falsely. The ANPR system shall in more than 99% of passages capture VLN images for vehicles traveling slower than 60 km/h.
- b) "Capture rate" is the proportion of vehicles with a readable Vehicle Licence Number that pass through the ANPR capture zone that result in a usable image i.e. the OCR result may be wrong but at least the Vehicle Licence Number is completely visible, the camera was not triggered falsely and a human operator can read the Vehicle Licence Number. The ANPR system shall in more than 98% of passages capture VLN images for vehicles traveling slower than 60 km/h.
- c) "Correct read rate" is the proportion of vehicles that pass through the ANPR capture zone with a readable Vehicle Licence Number that is visible to a human operator and which was interpreted correctly by the OCR engine or ANPR process(es). The ANPR system shall in more than 98% of passages analyse the capture VLN images and determine the correct VLN for vehicles traveling slower than 60 km/h.
- d) "ANPR confidence level assignment" is the proportion of vehicles value that pass through the ANPR capture zone with a readable Vehicle Licence Number that is visible to a human operator, and which was interpreted by the OCR engine or ANPR process(es). The ANPR system shall in more than 85% of passages assign an ANPR confidence level of more than 80 (out of 100) for correctly assigned VLN numbers and a value below 40 (out of 100) for incorrectly assigned VLN numbers. The Confidence thresholds may be adjusted by the ER at the Employers discretion.

3.4.8.10.3 In addition, the TCC shall indicate the confidence level, a value between 0 and 100, for every transaction processed via the OCR engine(s) and ANPR system, and if this is below a minimum configurable threshold, and it is required for the type of user, then the Toll System shall allow an operator/System User to manually review and enter a Vehicle Licence Number.

*Multiple OCR engines may be required to improve OCR confidence and reduce the number of images requiring manual review and/or verification.*

*The Contractor shall implement a ANPR, QLS and VGS Pilot project at the Gosforth Toll Plaza to prove the ANPR and VGS functionality and accuracy before procuring ANPR hardware for any of*

the other toll plazas. Formal design approval and functional compliance certification in terms of V2B4a clause 2.4.1 and 2.4.2 shall apply. The VGS, QLS and ANPR pilot shall cover all lanes at the Gosforth Toll Plaza.”

Add the following Sub-Clauses:

**“PS3.7.1.5**

*“The Contractor shall implement and maintain the South African Revenue Services (SARS) requirements as published from time to time. The Contractor shall ensure that the correct terminology is used when issuing any system generated TAX-Invoice or Copy TAX-Invoice, be it from the Lane / TCC or from the BOS level systems or other platforms.”*

**PS3.7.2.2(a)**

*The wording to be replaced with the following:*

*“(a) The SA National Roads Agency SOC Ltd”*

**“PS3.7.2.4**

*No receipts or Tax Invoices shall be printed in Automated or Dedicated ETC toll lanes while operating in an automated manner. See PS3.3.10.22 above (Alternative vehicle and transaction processing methodologies) for exceptions.”*

**PS 3.8.2.17 The Vehicle data message (AVC/TCC message type ID 2) format, TABLE 3-6: VEHICLE DATA MESSAGE. Item 12**

Add the following item to the message mapping list (This shall also apply to Message type ID 6):

- “• *AVC vehicle axle based class to be included with each message, first message in string: Vehicle class based on AVC classification including: 2L, 3L, 4L, 5L, 6L, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 2M, 3M.”*
- “• *AVC classification data string to be included with each message, second message in string: As followed by the following information:*
  - 1. Number of forward moving axles – F1 to F9. Example for a forward moving class 2 vehicle the message will be F2;*
  - 2. Number of backward moving axles – R1 to R9. Example for a forward moving class 2 vehicle the message will be R0;*
  - 3. Number of motorcycle wheels. Example for a class 2 vehicle the message will be M0;*
  - 4. Number of Light Vehicle axles. Example for a forward moving class 2 vehicle the message will be L1;*
  - 5. Number or Heavy Vehicle axles. Example for a forward moving class 2 vehicle the message will be H1;*

*A few examples for clarity:*

- 1. Forward moving 2L: ASF2R0M0L2H0*
- 2. Forward moving 3H: ASF3R0M0L1H2*
- 3. Forward moving 4H: ASF4R0M0L1H3*
- 4. Forward moving 8H: ASF8R0M0L1H7*
- 5. Forward moving motorcycle (2M): ASF2R0M2L0H0*
- 6. Forward moving motorcycle with sidecar (3M): ASF2R0M3L0H0”*

**PS3.10 Video Grabbing System (VGS) (which includes cameras, VGS network and/or cabling and Power Supply**

Delete Clause 3.10.1.1 and replace with the following:

**“PS3.10.1.1**

*The Contractor shall supply, install and maintain a VGS that equals or surpasses the minimum requirements set in this specification. The objective of this system is to serve as the primary, independent and stand-alone control and audit tool for the Employer and Contractor to ensure that video audits are possible on a continuous*

basis in order to record and verify all events and abnormal conditions, i.e. class discrepancies, violations and system failures. The VGS DVR shall continuously record images (video stream), at a frame rate of at least twenty-five (25) frames per second and must be able to record at WUXGA (1920 X 1200) but should be set a minimum resolution of SXGA+ unless otherwise instructed by the Employer Representative or as specified in the Project document (Volume 3), for the cameras connected to it to ensure that all passages through the toll lane is detected.

The VGS system shall include transaction framing (Motion, ANPR, lane date linking), user interfaces, finding storage and reporting capabilities. These functionalities shall be optimized and refined functionality to enable the VGS Clerk to perform the following tasks monthly.

- a) Count accuracy verification,
- b) Technical violation assessment/audits, e.g. "Green light", "Red light", reverse entry, rollback and vehicle standing assessment,
- c) Audit of VLN discrepancies for exempt, local and frequent users,
- d) Run through and tailgater investigation,
- e) Lane incidents and
- f) Customer complaints"

#### **PS3.10.1.12**

This clause to be modified to read as follows:

*"The VGS shall record images for all triggers generated by external or internal services, for a window period at set intervals as listed in Clause 3.11.1.4."*

### **PS5 GENERAL SYSTEM REQUIREMENTS**

#### **PS5.3 System Monitoring**

##### **PS5.3.1 General**

###### **PS5.3.1.1**

Add the following sentence:

*"The system monitoring function shall display all lanes' status simultaneously and if the number of lanes cannot be fitted on a single screen, additional screens should be added to display all lanes simultaneously."*

#### **PS5.4 Auditability**

##### **PS5.4.2 System Auditability**

The second sentence of Clause 5.4.2.1(k)i. to be modified to read as follows:

*"... daily basis, not later than forty-eight (48) hours after each calendar day, verify ...."*

#### **PS 5.4.14 CONFIGURATION CONTROL (ALSO PS 5.7.4.9)**

Add the following:

*"The system shall include automated processes, user interfaces and reports to detect discrepancies in the versions of software and settings. The system shall include versions control information as part of all executables and a separate process to verify software components and settings by comparing MD5 hash values against for deployed components against the MD5 hash values of the correct components.*

*The MD5 hash values will be calculated from the file contents of the executable, script or configuration file.*

*The System shall include a user interface to report and track the versions for all the components of the system. This shall include:*

1. Subsystem description
2. Component name
3. Executable name or script file name or static configuration file name.
4. Executable type or script type.
5. Executable version (only relevant for executable files and DLL's)
6. File size
7. MD5 Hash Value
8. Installation date
9. Creation date
10. Version update log
  - a) Previous versions
  - b) Version change dates

The above information shall be published by each sub-system on the network in the form of a web service (SOAP over HTTPS). The BOS shall collate all the version information from all the other subsystems.

The Toll System shall also include routine processes to monitor the accuracy of versions against the approved software version and settings sets. The process shall check the current system against the correct (tested and certified system), based on MD5 hash values generated for the current system deployment and checked against the stored hash values for the corrected (tested and certified system). Processes shall be implemented to correct and report incorrect versions and settings. All detected setting errors shall also be logged and reported as incidents to the supervisor. In cases of subsystems and lanes version verification shall be incorporated in the interfaces between the BOS and such system.

The DCS/AVC shall perform these functions as a separate module (Separate network), the other Toll sub-systems shall be monitored by the BOS.

The Contractor shall structure the sub-systems in such a way that each subsystem and its critical settings is grouped and stored in a manner that will allow hash values to be generated for all components and settings that affect the functionality of the system. Three sets of hash values, that cover executable and configuration, shall be generated:

1. Generic components: This hash value shall incorporate all generic components that are not affected by configuration details. This includes executables, DLL, scripts, database scripts and database configuration data exports. Any hash discrepancies shall be reported as executable version errors.
2. Static configuration: Static configuration that are lane or location specific. This includes .ini, dll, config files and database CSV exports for operating environment settings. Any hash discrepancies shall be reported as configuration errors.
3. Intermittently updated configuration: Configuration that are updated intermittently e.g. tariffs, discounts, messages, receipt lay-outs, timers etc. This includes .ini, dll, config files and database CSV exports for operating environment settings. Any hash discrepancies shall be reported as configuration errors.

**The Contractor shall store hash values for each subsystem that shall include the following:**

- a) Application directory: This shall be a folder/location that contains all the subsystem static critical application software, including executables, scripts, binaries, DLL, .ini, table export scripts and the hash file generation scripts used to perform version verification. Any hash discrepancies shall be reported as executable version errors.
- b) Database scripts exported into a text base format. Any hash discrepancies shall be reported as executable version errors.
- c) Static operating environment configuration table structures exported into sql scripts and xsd schema files. Any hash discrepancies shall be reported as configuration errors.
- d) Static operating environment configuration table contents exported as CSV files, ini files and XML files. Any hash discrepancies shall be reported as configuration errors.

The Contractor shall present a full design that incorporate the version management system for the ER's approval. All hash values shall be submitted to the ER prior to all SFAT and SAT tests with the appropriate

tools and scripts for the ER to independently verify the accuracy of the version and configurations of any deployed subsystem. The ER may use another MD5 tool of his choice to verify the hash values.

The Contractor's SAT and SFAT procedures include a process to verify the accuracy of the version monitoring and control mechanism.

The version checking process will be automated to run at system restarts and at regular intervals (per hour or per shift). Any hash value discrepancies shall be reported to the BOS (or in the case of the AVC/DCS to the DCS) with the appropriate data to identify the problem area. The discrepancy reporting shall report configuration errors and executable version errors.

All hash values shall be store as part of the Disaster Recovery Pack (Clause 2.1.13) and escrow package (Clause 2.1.9)"

#### **PS5.4.5 Protection of the Toll Systems**

Add the following after clause 5.4.5.3 (PCI DSS):

*"The Contractor level shall comply to the PCI DSS requirements for a level 2 Merchant in line with the requirements of the SANRAL Master/Visa quiring bank prescriptions. The Contractor shall complete the assessment and certification process and the annual confirmation of compliance."*

#### **PS5.4.17 Asset Management System**

Add the following subclause:

***"PS5.4.17.4 The minimum required fields for the Asset Management System are the following:***

<b><u>Field</u></b>	<b><u>Description</u></b>	<b><u>More Information</u></b>
<b>No.</b>	Normal Sequential Numbering	For referencing purposes
<b>Location</b>	Control Building	Every room with access from the inside of the Control Building
	Control Building External	Outside Areas and rooms without access from the inside of the Control Building
	Plant Room	Generator, UPS and Workshop (Workshop can either be part of external buildings, or Plant room, depending on physical location)
	Lanes	Lane areas
<b>Sub Location</b>	Plaza name + Room Name	Control Room (e.g.. Vaal Computer Room)
		Computer Room
		Manager's Office
		Cashup Room
		Banking Room
		Corridor
		Admin Office
		Admin Service Area
		Female Bathroom
		Male Bathroom
		Guest Male Bathroom
	Guest Female Bathroom	
	Technician Office	
	Engineer's Office	

		Janitor Room
		Store Room(Can be more than one e.g.. Store Room 1 and Store Room 2)
		Kitchen
		Boardroom
		Archive Room
		Lane Number: Plaza Abbreviation + Lane Number (e.g.. GM 51RN)
		Control Building External
		Stairs
		Tunnel
		Workshop
		UPS Room
		Generator Room (or Generator Area, depending on physical environment)
		Pump Room
		Courtyard
		Parking Area
<b>Asset Class</b>	Computer Equipment	
	Electronic	
	Electrical	
	Mechanical	
	Civil	
	Structural	
	Buildings	
	Land	
	Motor Vehicles	
	Office Furniture	
<b>Description</b>	Clearly identifiable Asset Description	e.g.. Power Supply - 400W ATX PC
<b>Size / Quantity</b>	Should be a number without a unit	400
<b>Unit</b>	Unit	e.g.. Cm, m, m <sup>2</sup>
<b>Estimated Age</b>	Asset Estimated Age	15
<b>Installation Date</b>	Physical Installation date	yyyy,mm
<b>Expected life (Years)</b>	Physical Number	15
<b>Estimated Replacement Value</b>	Two decimal Rand value (Formatted R English - South Africa)	R 1 500,00
<b>Barcode</b>	This should be the Allocated SANRAL barcode	This is the Contractor's Barcode. SANRAL will generate a separate barcode for computer equipment in the building
<b>Comments</b>	Field to be used for any further information which does not have a dedicated field	Text based

#### PS5.7.4.2 Critical and Serious errors

Add the following after clause 5.7.4.2:

*“The Contractor shall implement Lane and BOS incidents that evaluate incidents reported under clause 5.7.4.9. The BOS will bring the subsystem Serious and Critical Error Mode status to the Supervisors attention and will require acknowledgment by the Supervisor. The lane and subsystem status will only return to normal status*

once the problem that caused the Serious or Critical Error Mode status is corrected. The time to repair (start to end of a Serious or Critical Error Mode) and the vehicles processed during these abnormal periods will be report by the BOS as separate incidents which will be used to evaluate the KPI's associated with maintenance and availability (CT1, CT2, CT12, CT15) and failure related penalties (6.4.3, 6.4.4 and 6.5.6).

Subsystem Serious or Critical Error Mode will be reported to the BOS with a "start of serious (or critical) error mode" when the problem is detected, as specified under clause 5.7.4.5 and 5.7.4.9, by the subsystem or BOS and an "end of Serious Error mode (or Critical Error Mode)" incident when the BOS or subsystem detects, as specified under clause 5.7.4.5 and 5.7.4.9, that the fault status is cleared by the Contractor by replacing, resetting, repairing and/or correcting the offending item or error. Each start/end incident designation will be structured to identify the faulty subsystem and item/device.

The BOS system shall measure and report a Critical/Serious Error mode Time Exceeded incident where a subsystem or lane remain too long in Critical/Serious error mode. In instances where there are contiguously overlapping Critical/Serious Incidents the BOS shall calculate the Critical/Serious Error Mode time duration of this event using the time stamp of the first Critical/Serious Error Mode Incident as the start time of the Critical/Serious error mode event and the time stamp of the last Critical/Serious error Mode OK incident as the end time for the Critical/Serious Error Mode event, for the combination of all such critical Incidents as constitutes this contiguously overlapping set of Critical/Serious Error Mode time exceeded Incidents. The BOS will generate the Critical/Serious Error mode Time Exceeded Incident per lane and per subsystem. The Critical/Serious Error mode Time exceeded incident will be generated for every occurrence if the lane or subsystem remain in critical error mode period is longer than 4 (four) hours, or the value defined in the Project Document (Volume 3). Multiple Critical/Serious Error Mode time exceeded incidents is therefore possible for a single failure/error.

The BOS system shall measure and report a Critical Error mode Traffic Exceeded incident where more than 10 vehicles is processed in a lane that is in Critical Error Mode. Critical Error Mode shall exist for any period where different errors contiguously overlap. The BOS shall count passages for a lane the first Critical Error Mode error to the last Critical Error Mode OK incident. The BOS will generate the Critical Error Mode Traffic Exceeded Incident per lane. The Critical Error mode Traffic Exceeded incident will be generated for every occurrence where more than 10 passages is processed while the lane remain in Critical Error Mode. Multiple Critical Error Mode Traffic exceeded incidents is therefore possible for a single failure/error."

#### **PS5.7.4.9 System health monitoring**

Add the following below the clause:

"5.7.4.9 The system shall create incidents and record incidents on the BOS for, inter alia, the following conditions:

##### **Lane related incidents**

- a) Restarts or reboots;
- b) Software version changes, including dll changes;
- c) Incorrect software version;
- d) Lane settings change for, inter alia, tariff tables, discounts, UFD messages, .ini file changes;
- e) Incorrect lane settings for, inter alia, tariff tables, discounts, validation list, UFD messages, hotlist;
- f) Tag Reader failures;
- g) ANPR camera failures;
- h) VGS Camera failures;
- i) Lane Serious Error mode Start and End if the any of the following conditions exists and when it is cleared
- j) AVC communication failure;
- k) UFD failure;
- l) Receipt printer failure;
- m) VGS Camera failure;
- n) Lane local mode exists;
- o) Lane Controller door open.



- p) *Lane Critical Error mode Start and End if the any of the following conditions exists and when it is cleared. Incidents created for affected lanes*
- q) *ETC beacon failure;*
- r) *More than two VGS cameras fail;*
- s) *Boom break away exists;*
- t) *Boom forced open;*
- u) *Plaza local area network failure;*
- v) *Lane UPS battery low;*
- w) *Lane UPS failure;*
- x) *Validation list older than 4 hrs base on the time the current validation list was received by the BOS;*
- y) *ANPR camera failure;*
- z) *Wrong software version;*
- aa) *Wrong lane settings version.*
- bb) *Failures of any other controller;*

### **Back Office System**

- a) *Lane linked Critical error mode time exceeded when critical error mode exists for more than 4 hours, or the value defined in the Project Document (Volume 3), for any lane or subsystem*
- b) *Lane linked Critical error mode traffic exceeded when more than 10 vehicles is processed in a lane that is in critical error mode*
- c) *Lane linked Serious error mode time exceeded when serious error mode exists for more than 24 hours, or the value defined in the Project Document (Volume 3), for any lane or subsystem*
- d) *BOS, VGS, QL1, QL2, TCH payment gateway (PGW) or QLS Serious Error mode Start and End if the any of the following conditions exists and when it is cleared*
- e) *Incorrect settings for BOS, VGS, QL1, QL2, TCH payment gateway (PGW) or QLS. This includes inter alia.*
  - i. *Back-up settings*
  - ii. *Software version changes. This includes inter alia.*
  - iii. *BOS interface related software*
  - iv. *BOS reports changes*
  - v. *Changes to function or report access level*
- f) *BOS to VGS importer failure*
- g) *BOS/ QL1 failure*
- h) *BOS Critical Error mode Start and End if the any of the following conditions, respectively, exists or it is cleared*
- i) *Incorrect settings for BOS, VGS, QL1, QL2, TCH payment gateway (PGW) or QLS. This includes inter alia.*
  - i. *Camera to lane mapping for recordings related to Table 3-10 (VGS actions)*
  - ii. *VGS/BOS interface settings*
  - iii. *Software version changes. This includes inter alia.*
  - iv. *BOS interface related software*
  - v. *BOS server software changes*
  - vi. *VGS server changes*
- j) *VGS/BOS interface failure*
- k) *VGS failure*
- l) *Incident control failure*
- m) *Incident control image retrieval failure*
- n) *QL1 camera failure*

- o) QL1 failure
- p) QL2 camera failure
- q) QL2 failure
- r) NVR failure
- s) TCH link failure
- t) Current BOS Validation list older than 4 hours

5.7.4.10 The System shall generate a BOS incident data and deliver it to the SANRAL MIS.”

## **PS6. BACK-OFFICE SYSTEM REQUIREMENTS**

### **PS6.1.3 BACK OFFICE FOR CONVENTIONAL AND HYBRID TOLL PLAZAS**

#### **PS6.1.3.1 The purpose of the Back Office System at Conventional Toll Plazas**

Replace with the following:

*“The purpose of the Back Office System at Conventional Toll Plazas is to:*

- a) *Receive data from all the lanes, validate data to ensure correctness and completeness, and provide system tools to the plaza supervisory personnel to assist with the efficient management of the data and the plaza.*
- b) *Allow manual input of additional data required for accurate transaction processing, including adding an Actual Class and Actual Vehicle Licence Number for transactions with class discrepancies or Vehicle number plate discrepancies. Allow for adding transaction information not captured in the lane, e.g. transactions processed during Manual Mode operations or data for undetected passages.*
- c) *Verify and consolidate complete data received from each Toll Lane and RSS linked to each virtual plaza linked to the Back Office to process all data including additional payments received, or made at the Back Office level, allow for the employee cash-up and provide employee and period reconciliations (calendar day, operational day and or other shift periods).*
- d) *Allow for local account maintenance, allocate Discounts, perform account maintenance functions, transfer data files to external systems, provide consolidated reconciliations, allow controlled system configuration and provide comprehensive reports on all activities. The Back Office System is also to facilitate the automated interaction with account holders. The system shall also manage the integrated verification interface to the approved financial institution providing Bank Card verification and transaction processing employing a Point-of-Sale (POS) unit.*
- e) *Automate and manage functions required to accurately and completely capture the required information related to all vehicle passages.*
- f) *Ensure system auditability.*
- g) *Integrate, store and disperse data received from lanes, VGS, QLS, QL1 and other interfaced systems e.g., TCH.*
- h) *Provide Operations Centre level to facilitate the configuration and performance control and management of multiple control centres and plazas on a route.*
- i) *Capture audit trails and ensure auditability.*
- j) *Meet TAX requirements.*
- k) *Secure data and protect system processes.*
- l) *Comply with applicable industry, statutory and regulatory requirements. “*

PS6.1.3.2 The Back Office System shall provide the functionality to:

Replace with the following:

- “(a) Verify the completeness, continuity and authenticity of data received from the lanes continuously and on a scheduled basis;*
- (b) Retain source data and add information required for data completeness;*

- (c) *Automatically transmit consistent data to higher levels and via interfaces;*
- (d) *Provide visibility of all the background processes and system configurations to allow the supervisory staff to manage the system and identify system problems;*
- (e) *Report and manage Incidents that occur at the plaza level or the lane level. This includes amongst others the VGS application, VGS cameras and primary recording devices;*
- (f) *Receive operational lists and configurations and send the information to the lanes;*
- (g) *Allow for adequate redundancy and storage capacity, back-up and housekeeping facilities;*
- (h) *Manage Toll Revenue, e.g. Control cash Revenue via the cash-up, consolidated cash-up and cash banked functions;*
- (i) *Allow account registration and maintenance functions for local account holders;*
- (j) *Allocate Discount;*
- (k) *Create data files for transmission to external systems for further processing of electronic transactions;*
- (l) *Receive and compile operational lists and configurations and send the information to the lower levels.*
- (m) *Report on traffic, financial information, audit trails, data status, lane and hardware performance and maintenance.*
- (n) *Compile the final complete passage record, for transmission to the SANRAL MIS, that include all raw data, operational and processing amendments, incident/*
- (o) *User friendliness*
  - i) *The system shall be user friendly. User friendliness shall be measured against the following items:*
  - ii) *Consistent screen, selection box and report layout.*
  - iii) *Mouse and hot key functionality.*
  - iv) *Default values and pick lists.*
  - v) *Calendar selection boxes.*
  - vi) *Consistent error handling.*
  - vii) *Warning if selection is out of range.*
  - viii) *The application shall share workstations with other MS Office applications.*
  - ix) *Allow multiple tasks to be performed by utilising tabs and multithreading.*
  - x) *Consolidation of all functions/applications into a single user interface.*
  - xi) *Exception reporting.*
  - xii) *User specific profile set-up.*
  - xiii) *Reports must be portable to formatted PDF, tabular CSV and Excel.*
  - xiv) *E-mail reports from BOS.*
  - xv) *Report maintenance issues via e-mail and/or via the Employer's helpdesk system (interface to be designed).*
  - xvi) *Online help functions – User manuals in electronic format.”*

#### **PS6.2.5 MANUAL NUMBER PLATE RECOGNITION (MNPR) FOR OPT-IN TOLL AGENCIES**

MNPR and the requirements of this clause and related requirements based on the availability of ANPR shall be required.

## PS6.2.7 V-TOLL TRANSACTIONS (OPT-IN TOLL AGENCIES)

V-Toll shall not be required under this contract.

The Contractor and the toll system shall allow for two types of manually captured TCH transactions. Both type of transactions shall be flagged as manual transactions. Manual transaction creation and submission shall only be possible for valid tags, verified against the validation list at the time of creation.

1. Fully manual transaction: A transaction created in total based on the vehicles VLN or Tag number.
2. Partially manual transaction: A lane created transaction or run through violation, modified at plaza level based on the VLN or tag number.

## PS6.2.8.2 Vehicle License Number Discrepancies (Opt-in Toll Agencies)

Replace this clause with:

### ***“6.2.8.2 Vehicle Licence Number Discrepancies:***

- a) A Tag shall be dedicated to a specific vehicle with a unique vehicle Licence Number. A Tag is not transferable between vehicles.*
- b) The Back Office System shall provide a function to identify Vehicle Licence Number discrepancies for all Tag linked passages. (If a particular Tag is not eligible for Discount, Exempt or Free Passage, the Vehicle Licence Number need not be verified, unless these transactions are queried by the road user).*
- c) If the Vehicle Licence Number of the front licence plate differs from the rear licence plate number, the Vehicle Licence Number of the front licence plate shall be used (if available).*
- d) The Main Contractor shall for all tags associated with Discount, Exempt or Free Passage, compare the Vehicle Licence Number derived from the ANPR process with the Vehicle Licence Number in current the Validation List(s), also known as the registered Vehicle Licence Number. All mismatches, VLN Discrepancies, shall be visually verified and in cases where the ANPR was incorrect the correct MNPR will be entered.*
- e) The Back Office System shall keep track of the number of mismatches between the registered VLN and the VLN determined through the ANPR process through an automated or manual process.*
- f) All VLN Discrepancies, that were manually verified as actual discrepancies, and which are linked to Tags the eligible for Discount or Exempt or Free Passage transactions shall be dealt with in terms of the user conditions associated. If there is a continuous mismatch between the registered VLN and the VLN determined through the ANPR process and the mismatches can be verified, the Transaction Records shall be flagged as Vehicle Licence Number discrepancies to inform the TCH System that the road user is possibly abusing the Discount rules, so that the TCH System can take further action, such as to inform the road user about the mismatches. The Main Contractor shall also take the appropriate actions to disqualify users with local user discounts. This shall include applying the nominal tariff to for transactions with verified VLN discrepancies.*
- g) On the N17 Toll Road, the respective plazas have a local concession system as documented in Volume 4, C15 that allows local users to receive discounts after swiping their Concession card. The system then accepts payment as cash, or credit card, at a discounted tariff. The ANPR system shall utilize ANPR to monitor all TA card transactions at lane level. For discounts that are linked to Concession cards, the TCC shall perform a VLN verification that compares the registered VLN against the ANPR VLN. In case of a VLN discrepancy the TCC shall prompt the Toll Collector to accept the ANPR value or enter the correct VLN, from the front view image displayed by TCC on the VDU. All VLN Discrepancies that were manually verified as actual discrepancies shall be dealt with in terms of the user conditions associated with the TA card. The TCC shall cancel the discount and revert the tariff to the nominal value if the TA card conditions of use require that only a specific vehicle (VLN) be used with the TA card. The TCC shall generate an incident to notify the supervisor and the Contractor shall take the necessary corrective steps.*
- h) If a road user continues to misuse the system, the Discount of a road user may be terminated. The Back Office System shall no longer apply the Discount to Transaction Records linked to the Tag Identifier or TA card.”*

## PS7 INTERFACES

### PS7.1.11 Discounts

The Discount types that have been published in the latest Government Gazette for the existing Toll Plazas on the N17 Toll Road are:

- Frequent User discount at Dalpark and Gosforth Plaza
- Local Commuter and Frequent User discounts at Ermelo, Trichardtsfontein and Leandra Toll Plazas.

#### PS7.4 The Employers Interface

##### PS7.4.4 Interface Definition: Predefined Data

Delete "Table 7-4" and replace with the following:

Table 7-4: Methods of Payment (Conventional /Hybrid Toll Plazas)

<b>Payment Group</b>	<b>Possible Payment Mechanism applicable to the Payment Group (identified by)</b>	<b>Possible Discounts applicable to the Payment Type/Group</b>	<b>Payment Type</b>
<i>Cash</i>	<i>Cash Operator Card (Magnetic Stripe)</i>	<i>Nominal Tariff Local and Regional Discount</i>	<i>Cash</i>
<i>TCH Account (Pre- and Post-Paid Account Identifiers on the Green List but EXCLUDING any Exempt Vehicle Identifiers)</i>	<i>ETC Tag issued by the TCH VLN 3rd Identifier</i>	<i>Nominal Tariff Frequent User Discount Local and Regional Discount Payment Mechanism Discount Time of day Discount Public Transport Discount</i>	<i>N/A</i>
<i>Pre-Payment</i>	<i>Credit Cards Fleet Cards Charge Cards Operator Card (Mag striped) Operator Card (Smart card) Smart Card issued by a Bank Bank Debit Cards</i>	<i>Nominal Tariff Frequent User Discount Local and Regional Discount Discretionary Discounts Heavy Vehicle Discounts</i>	<i>Cash (Including debit orders, cheques, direct transfers, bank deposits etc.) Clearing of Bank Issued Card payments Other</i>
<i>Post Payment</i>	<i>Credit Cards (Registered and Un-registered Users) Fleet Cards Charge Cards Operator Card (Magnetic stripe) Operator Card (Smart card) Smart card issued by a Bank Bank Debit Cards</i>	<i>Nominal Tariff Frequent User Discount Local and Regional Discount Discretionary Discounts Heavy Vehicle discounts</i>	<i>Cash (Including debit orders, cheques, direct transfers, bank deposits etc.) Clearing of Bank Issued Card payments Other</i>
<i>Run-through Violation</i>	<i>Run Through Identifier</i>	<i>Nominal Tariff</i>	<i>Cash (Including debit orders, cheques, direct transfers, bank deposits etc.)</i>

<b>Payment Group</b>	<b>Possible Payment Mechanism applicable to the Payment Group (identified by)</b>	<b>Possible Discounts applicable to the Payment Type/Group</b>	<b>Payment Type</b>
			Clearing of Bank Issued Card payments Other
Exempt Vehicles (SANDF) (SAPS) (Other) (For ETC Tags this shall be determined by the account type as indicated by means of the Validation List(s))	Credit Cards Fleet Cards Charge Cards Operator Card (Magnetic stripe) Operator Card (Smart card) Smart card issued by a Bank ETC Tag issued by the TCH (only Exempt Identifiers) Bank Debit Cards Official Warrant	100 % discount (Taxable Nominal Tariff Transaction in Toll Lane written off in Back Office with Credit Note).	Cash (Including debit orders, cheques, direct transfers, bank deposits etc.) Clearing of Bank Issued Card payments Credit Notes Other
No-Payment	No-Payment identifier	Nominal Tariff	Cash (Including debit orders, cheques, direct transfers, bank deposits etc.) Clearing of Bank Issued Card payments Other
Sundry items: (Pre-paid User account deposits) (Surplus Revenue) (Over collections, Negative discrepancies etc) (Paid passage transactions for Violations, Exempts, No-Payments) (Other income for the Employer's account) (Other income for Contractor account including Contractor user account charges)	Credit Cards Fleet Cards Charge Cards Operator Card (Magnetic stripe) Operator Card (smart card) Smart Card issued by a Bank ETC Tag issued by the TCH (only Exempt Identifiers) Bank Debit Cards User Account ID  Other depending on transaction type.		Cash (Including debit orders, cheques, direct transfers, bank deposits etc.) Clearing of Bank Issued Card payments Contractor account dt/ct Other

Delete "Table 7-5" and replace with the following:

**Table 7-5: Payment Groups**

<b>Payment Group ID</b>	<b>Payment Group</b>
01	Cash
02	Pre-paid

Payment Group ID	Payment Group
03	Post paid
04	Run-through Violation
05	Exempt Vehicle
06	No Payment
07	Sundry: Pre-paid User account deposits
08	Sundry: Surplus Revenue (Over collections, Negative discrepancies etc)
09	Sundry: Paid passage transactions – Violations, Exempts, No-Payments
10	Sundry: Other income for the Employer’s account
11	Sundry: Other income for Contractor account including Contractor user account charges
12	TCH Account (excl. Exempt Vehicle accounts)
13	Sundry Deposits – other
....	....
N	Payment Group <sub>n</sub>

Delete “Table 7-6” and replace with the following:

**Table 7-6: Payment Types**

Payment Type ID	Payment Type
01	Cash
02	Bank Issued ISO Credit Card
03	Fleet Card
04	Charge Card
05	Contractor Account
06	Credit Notes
07	Debit Order
08	EFT
09	Employer Clearing House (TCH)
....	....
N	Payment Type <sub>n</sub>

Delete “Table 7-7” and replace with the following:

**Table 7-7: Payment Mechanisms**

Payment Mechanism ID	Payment Mechanism name
00	Cash
01	ISO Credit Card – unregistered users
02	Fleet Card – unregistered users
03	Charge Card
04	ETC Tag
05	Operator Card
06	Smart Card
07	Operator Smart Card
08	Official Warrant
09	Run Through
10	No-Payment
11	Registered ISO Credit Card Users
12	Registered Fleet Credit Card Users
13	VLN
14	3 <sup>rd</sup> Identifier
....	....
N	Payment Mechanism

PS 7.4.4.4 Methods of Payment for ORT Type Application

Delete “Table 7-10” and replace with the following:

**Table 7-10: Payment Mechanisms (ORT)**

Payment Mechanism ID	Payment Mechanism name
04	ETC Tag
08	Exempt Identifier (Tag / VLN / 3 <sup>rd</sup> Identifier)
09	Run Through
13	VLN
14	3 <sup>rd</sup> Identifier

**PS7.4.4.5 Discount types for Conventional and Conventional portions of Conventional/Hybrid Toll Plazas**

Delete “Table 7-11” and replace with the following:

**Table 7-11: Discount Types**

Discount ID	Discount Name
00	Nominal
01	Heavy Vehicle Discount
02	Frequent User Discount
03	Local and Regional Discount
04	Contractor Account
05	Official SANDF Warrants
06	Official SAPS Warrants
07	Discretionary Discount
08	Payment Mechanism Discount
09	Time of Day Discount
10	Public Transport Discount
....	....
N	Discount

Delete “Table 7-13” and replace with the following:

**Table 7-13: Vehicle Classes – Axle Based (Illustrative Information – Refer to Government Gazette for Vehicle Class Information)**

ID	Name	Mapped Vehicle Classes
01	Toll Class 1	2 or more axle Light Vehicle
02	Toll Class 2	2 axle Heavy Vehicle
03	Toll Class 3	3 axle and 4 axle Heavy Vehicle
04	Toll Class 4	5 and more axle Heavy Vehicle
05	Toll Class 5 When triggered	Motorcycles

**PS7.4.5 Interface Definition AVC/DCS and other Toll System Incidents/Fault Messages**

Delete “Table 7-15” and replace with the following:

**Table 7-15: Incident Messages (Conventional / Hybrid Toll Plazas)**



ID	Name	Source/Comment	Reported to	Required /Optional
001	AVC reboot/restart	AVC/Recorded by AVC on during boot cycle and AVC application restart.	DCS/TCC/VGS/BOS/ITIS	Required
002	Serious start – AVC/DCS Communication fail	AVC/Detected by AVC when communication is lost with DCS. Trigger Serious Mode.	DCS/TCC/VGS/BOS/ITIS	Required
003	Serious end – AVC/DCS Communication OK	AVC/Detected by AVC when communication is restored with DCS	DCS/TCC/VGS/BOS/ITIS	Required
004	Roll-back	AVC/Defined elsewhere in the document	DCS/TCC/VGS/BOS/ITIS	Optional
005	Reverse entry	AVC/Defined elsewhere in the document	DCS/TCC/VGS/BOS/ITIS	Optional
006	Vehicle standing	AVC/Defined elsewhere in the document	DCS/TCC/VGS/BOS/ITIS	Required
007	Vehicle with more than 10 axles	AVC/Maximum number of axles detected by any of the axle counters. Configurable parameter.	DCS/TCC/VGS/BOS/ITIS	Required
008	AVC sensor type 1 - fail	AVC/Presence detector failure, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
009	AVC sensor type 1 - OK	AVC/Presence detector reset, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
010	AVC sensor type 2 - fail	AVC/Axle counter failure, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
011	AVC sensor type 2 - OK	AVC/Axle counter reset, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
012	AVC sensor type 3 - fail	AVC/Light/Heavy detector failure, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
013	AVC sensor type 3 - OK	AVC/Light/Heavy detector reset, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
014	AVC sensor type 4 - fail	AVC/Height detector failure, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
015	AVC sensor type 4 - OK	AVC/Height detector reset, detected after three passages	DCS/TCC/VGS/BOS/ITIS	Required
016	Critical start - AVC panel door open	AVC/Detected by AVC on opening of door. Trigger Critical Mode when associated with vehicle presence.	DCS/TCC/VGS/BOS/ITIS	Required
017	Critical end - AVC panel door close	AVC/Detected by AVC on closing of door	DCS/TCC/VGS/BOS/ITIS	Required
018	Serious start - AVC Stand-alone Data	AVC/Reported by AVC if vehicle passage/s were recorded while AVC was in stand-alone mode. Trigger Serious Mode.	DCS/ITIS/TCC/VGS/BOS	Required
019	Serious end - AVC Stand-alone Data	AVC/Reported by the AVC at the time when the AVC Stand-alone status is restored. The Incident is only reported if vehicles were recorded by the AVC during the AVC Stand-alone period. Incidents 18 & 19 are, therefore, always paired.	DCS/ITIS/TCC/VGS/BOS	Required

020	Critical start – AVC Storage 90% full	AVC/AVC Data storage device (e.g. Hard drive or flash) disk 90% full. This status is to be checked at least, once every hour and reported when valid. Trigger Critical Mode.	DCS/TCC/IT IS/BOS	Required
021	Critical start – AVC-UPS Backup battery voltage low	AVC/AVC UPS battery voltage low. Minimum voltage before Incident is generated is described elsewhere. Trigger Critical Mode.	DCS/TCC/VGS/ITIS/BOS	Required
022	Critical end – AVC-UPS Backup battery voltage OK	AVC/AVC UPS battery voltage recovered above the voltage low threshold described above, ready for repeated standby period.	DCS/TCC/VGS/ITIS/BOS	Required
023	Serious start – TCC Communication fail	AVC/AVC/TCC communication failure detected and reported by the AVC and TCC. Trigger Serious Mode.	DCS/TCC/VGS/ITIS/BOS	Required
024	Serious end – TCC Communication OK	AVC/Communication restoration detected by AVC	DCS/TCC/VGS/ITIS/BOS	Required
025	Un-transmitted data deleted	AVC/AVC Data deleted by user or system before successfully transmitted to the DCS.	DCS/TCC/ITIS/BOS	Required
026	Plaza UPS power failed	AVC/Power to AVC fail (plaza UPS power)	DCS/TCC/VGS/ITIS/BOS	Required
027	Plaza UPS power OK	AVC/Power to AVC restored (plaza UPS power)	DCS/TCC/VGS/ITIS/BOS	Required
028	AVC User access – login	AVC/User accessed AVC (Software login)	DCS/TCC/ITIS/BOS	Required
029	AVC User access – logout	AVC/User access to AVC terminated (Software log-out)	DCS/TCC/ITIS/BOS	Required
030	Critical start – Sensor failure	AVC/Generated by the AVC when any two or more sensors fail during a vehicle passage. Trigger Critical Mode.	DCS/TCC/VGS/ITIS/BOS	Required
031	AVC time update	AVC/AVC time check / updated by User or time server via the TCC. Minimum, once every 24 hours for each AVC.	DCS/TCC/ITIS/BOS	Required
032	Lane IP address change	TCC/IP address changed by user	DCS/TCC/ITIS/BOS	Optional
033	Plaza IP address change	BO System/IP address changed by user	BOS/ITIS/BOS	Optional
034	AVC IP address change	AVC/IP address changed by user	DCS/TCC/VGS/ITIS/BOS	Required
035	Lane ID change	AVC and/or TCC/Lane ID changed by user	DCS/TCC/BOS/ITIS	Required
036	Reserved			-
037	AVC License expired	AVC/ In the event where any AVC is managed by means of any license and such licence expire.	DCS/TCC/BOS/ITIS	Required where applicable
038	AVC License updated	AVC/ In the event where any AVC related license is modified.	DCS/TCC/BOS/ITIS	Required where applicable
039	AVC Data Storage Device reset	AVC/ In the event where the AVC storage device can be reset - be it manual / mechanically or electronically.	DCS/TCC/BOS	Required where applicable

040	AVC Data Storage Device error	AVC/ In the event where any AVC data storage error is detected, either by the system operating system or in the event where any read or write action failed, for whatever reason.	DCS/TCC/BOS	Required
041	Wrong Direction	AVC/Defined elsewhere in document. Also see reverse passage.	DCS/TCC/VGS/ITIS/BOS	Required
042	AVC Mode change	AVC/AVC switches between primary and pseudo lane-Ids (ramp/mainline swapping) Generate Incident when the lane is activated to process transactions for the pseudo lane AND generate the Incident for each passage processed in the pseudo state.	DCS/TCC/VGS/ITIS/BOS	Required if applicable.
043	Ramp/Mainline barrier	AVC/Incident generated when any vehicle is detected through the Ramp/Mainline barrier. The additional sensors installed in the barrier – typically between mainline and ramp.	DCS/TCC/VGS/ITIS/BOS	Required
044	Run-Through Violation	AVC/Incident generated when any vehicle passes through the AVC (in any direction) without any valid method of payment.	DCS/TCC/VGS/ITIS/BOS	Required
045	Critical end – Sensor failure	AVC/Generated by the AVC when two or more of the sensors are no longer faulty. After three consecutive passages without error.	DCS/TCC/ITIS/BOS	Required
046	Serious start – DCS/AVC comms fail	DCS /Generated by the DCS when a communication failure with the AVC is detected by the DCS. Trigger Serious Mode.	BOS/VGS/ITIS	Required
047	Serious End – DCS/AVC comms fail	DCS /Generated by the DCS when a communication failure with the AVC is restored	BOS/VGS/ITIS	Required
048	Critical error mode time exceeded	AVC or DCS/ The DCS will determine the critical error mode time duration of all critical AVC Incident events. In instances where there are contiguously overlapping critical Incidents (e.g. a subsequent AVC critical Incident event occurring prior to the resolution of a previous/current AVC critical Incident event being resolved) the DCS shall calculate the critical mode error time duration of this event using the time stamp of the first critical AVC Incident fail as the start time of the event and the time stamp of the last AVC critical Incident OK as the end time for the event, for the combination of all such critical Incidents as constitutes this continuously overlapping set of AVC critical Incidents. The DCS will	DCS/BOS/ITIS	Required

		generate this Incident per AVC. It will be generated if the critical mode period is longer than 4 (four) hours, or the period as specified in the Project Document (Volume 3). This Incident will be generated continuously for every continuous 4 (four) hour period interval, or corresponding period interval specified in the Project Document (Volume 3), that the AVC remains in critical error mode		
049	Critical error mode traffic exceeded	AVC or DCS/ The DCS will generate this Incident per AVC if the traffic processed whilst the AVC is in critical error mode exceeds 10 vehicles. Incident repeated after each tenth vehicle during the Critical Error mode period.	DCS/BOS/ITIS	Required
050	Serious error mode time exceeded	AVC or DCS/ The DCS will determine the AVC Serious mode error time durations of all critical AVC Incident events. In instances where there are contiguous or overlapping serious AVC Incidents (e.g. a subsequent AVC serious Incident event occurring prior to the resolution of a previous/current AVC serious Incident event being resolved) the DCS shall calculate the serious error mode time duration of this event using the time stamp of the first serious AVC Incident fail as the start time of the event and the time stamp of the last serious AVC Incident OK as the end time for the event, for the combination of all such serious Incidents constitute this contiguous or overlapping set of AVC critical Incidents. The DCS will generate this Incident per AVC. It will be generated if the serious mode period is longer than 24 (twenty-four) hours, or the period specified in the Project Document (Volume 3). This Incident will be generated continuously for every continuous 24 (twenty-four) hour period interval, or corresponding period interval specified in the Project Document (Volume 3), that the AVC remains in serious error mode.	DCS/BOS/ITIS	Required
051	AVC data missing – Critical error mode	DCS/ When compiling the AVC traffic and Incident/Fault log summaries for the previous calendar day (consolidation period), the DCS will check if hourly summaries (audit file) were received	DCS/BOS/ITIS	Required

		from all the AVCs (No less than 24 summaries (audit file periods) must be available for each AVC). The DCS will generate this Incident for every AVC where summaries for the complete consolidation period for that AVC have not been received.		
052	DCS reboot	DCS/ The DCS shall generate this Incident when the DCS application/service is restarted. Incident is reported to ITIS via DCS Fault Log Data File since it is not Toll Lane related.	BOS/ITIS	Required
053	ITIS data submission failure	DCS/ The DCS shall generate this Incident indicating any ITIS file submission error. This includes data and reply retrieval and submission errors.	BOS/ITIS	Required
054	Positive Discrepancy (PD)	AVC or BOS /The AVC shall generate this Incident in the event where the manual and or registered vehicle classification received from the TCC is a lower Vehicle Class than that detected by the AVC (Based on financial value). This Incident shall also be generated in the event where no manual or registered vehicle classification has been received from the TCC (e.g. Violation without manual classification or valid registered identifier present). Should the discrepancy be identified on the BOS level the BOS shall generate the incident. Also applicable to manually captured or verified transactions.	TCC/DCS/VGS/ITIS/BOS	Required
055	Negative discrepancy (ND)	AVC or BOS /The AVC shall generate this Incident in the event where the manual and or registered vehicle classification received from the TCC is a higher Vehicle Class than that detected by the AVC (Based on financial value). Should the discrepancy be identified on the BOS level the BOS shall generate the incident. Also applicable to manually captured or verified transactions.	TCC/DCS/VGS/ITIS/BOS	Required
056	Reversible Lane AVC pair – Active AVC	AVC/Incident generated by the active AVC in a reversible Lane, upon being activated for Vehicle processing. Also generated at the end of the hour to indicate current state of the AVC.	TCC/DCS/ITIS/BOS	Required, if applicable
057	Reversible Lane AVC pair – Dormant AVC	AVC/Incident generated by the dormant AVC in a reversible Lane upon being made 'inactive' for Vehicle processing. Also generated	TCC/DCS/ITIS/BOS	Required, if applicable

		at the end of the hour to indicate current state of the AVC.		
058	Critical End – AVC Storage 90% Full	AVC/AVC Data storage device (e.g. Hard drive or flash) disk 90% full cleared.	DCS/TCC/ITIS/BOS	Required, if applicable
059	VGS Camera Failure.	NVR/DVR/VGS NVR/DVR or Server to record any failure of any VGS camera/s or signal from the VGS camera/s, which will cause this incident to be generated.	NVR/DVR/BOS/VGS/ITIS	Required
060	VGS Camera Failure OK	NVR/DVR/VGS NVR/DVR or Server to record the correction or restoration of the fault state reported under incident no. 59.	NVR/DVR/BOS/VGS/ITIS	Required
061	QLS Camera Failure	QLS/QLS NVR/DVR or Server to record any failure of any QLS camera or signal from the QLS camera/s, which will cause this incident to be generated.	NVR/DVR/BOS/VGS/ITIS	Required
062	QLS Camera Failure OK	QLS/QLS NVR/DVR or Server to record the correction or restoration of the fault state reported under incident no. 61.	NVR/DVR/BOS/VGS/ITIS	Required
063	Toll Booth Surveillance Camera Failure	TCC/ When the toll booth surveillance NVR/DVR detects any faults with a camera/s or the signal from the camera/s to the NVR/DVR or the TCC records the failure of the local TCC NVR/DVR, this incident will be generated.	TCC/BOS/VGS/ITIS	Required
064	Toll Booth Surveillance Camera Failure OK	TCC/When the TCC records the correction or restoration of the fault state reported under incident no. 63.	TCC/BOS/VGS/ITIS	Required
065	Paper Low	TCC/Detected by the TCC when the Receipt printer paper is low.	TCC/BOS/ITIS	
066	Paper Empty	TCC/Detected by the TCC when the printer paper is empty.	TCC/BOS/ITIS	Required
067	Printer Communications Failure	TCC/Detected by the TCC when the TCC fails to receive a confirmation signal that the print information sent to the printer has been printed successfully.	TCC/BOS/ITIS	
068	Load Shift	TCC (or AVC)/When the load shift sensor detects rotation of more than 15° the incident shall be generated. Real time messaging to ER and Enforcement Agency as instructed by ER.	(DCS)/TCC/BOS/VGS/ITIS (Enforcement Authority when triggered)	Required
069	Height Sensor 4.2m	AVC/When a vehicle with a height exceeding 4.2m but less or equal to 4.8m is detected during any vehicle passage.	DCS/TCC/BOS/VGS/ITIS Enforcement Authority	Required if Triggered
070	Height Sensor 4.7m	AVC/When a vehicle with a height exceeding 4.7m is detected during any vehicle passage. Real time messaging to ER and Enforcement Agency as instructed by ER.	DCS/TCC/BOS/VGS/ITIS (Enforcement Authority when triggered)	Required

071	Exit Barrier Breakaway	TCC (or AVC)/When the breakaway sensor(s) is activated as a result of the exit barrier arm being broken away from its normal locked state. Report to DCS if barrier control is performed by AVC.	(DCS)/TCC/BOS/VGS/ITIS	Required
072	Exit Barrier Force Vertical	TCC (or AVC)/When the exit barrier arm is forced open vertically. Report to DCS if barrier control is performed by AVC.	(DCS)/TCC/BOS/VGS/ITIS	Required
073	Extra Wide Sensors active	AVC/AVC shall generate if any sensor or combination of sensors are activated from the extra wide area of the AVC area indicating the presence of any object in that area.	DCS/TCC/BOS/VGS/ITIS	Required
074	Transaction Timeout	TCC/TCC transaction failed to conclude with valid AVC classification message. Systematic procedure employed to conclude TCC transaction.	TCC/BOS/VGS/ITIS	Required
075	VOSI Vehicle detected	TCC When the VOSI is detected as per the set criteria. Real time messaging to ER and Enforcement Agency as instructed by ER.	TCC/VGS/BOS/ITIS (Enforcement Authority when triggered)	Required
076	ETC Run-Through Violation	TCC/TCC generate incident when any vehicle passes through the ETC Reading zone (in any direction) without any valid method of payment (Payment Mechanism) attached to such passage transaction. (Incident is not generated where valid transactions are processed, with other payment mechanisms, other than ETC). (V2B5cl:5.3.4.5).	DCS/TCC/BOS/VGS/ITIS	Required
077	ETC Vehicle Rollback	AVC or TCC/ TCC or AVC will generate the incident in the event where any vehicle rolls back through the ETC reading zone. This incident serves to monitor vehicle queuing in Dedicated ETC Toll Lanes where vehicle separation is monitored by a dual light curtain in the lane entry zone. (V2B5cl:5.3.4.5).	DCS/TCC/BOS/ITIS	Required for Dedicated ETC Toll Lanes
078	ETC Vehicle Standing	AVC or TCC/ AVC or TCC generate incident in the event where any vehicle remains standing in the ETC reading zone or vehicle fails to exit the Toll Lane. (V2B5cl:5.3.4.5).	DCS/TCC/BOS/ITIS	Required for ETC enabled Toll Lanes.
079	ETC Vehicle Re-Entry	TCC or BOS/TCC or BOS generate incident when an ETC transaction with (VLN and/or PAN as applicable per application) has been completed or partially completed with a vehicle and the vehicle has moved out of the tolling zone for a period of sufficient length that the Tolling System will try to generate a	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes

		second transaction upon the vehicle re-entering the zone (not applicable to recurrent valid transactions at the same Toll Plaza). Could also be used in the event where valid queued vehicles are to be passed through a toll lane due to an earlier queuing error. (V2B5cl:5.3.4.5).		
080	ETC Invalid Identifier	TCC/TCC generate in the event when a vehicle with an invalid Identifier (such as an invalid or fraudulent Tag as described below in V2B5cl:5.3.4.5 d) and/or with an unrecognisable VLN etc. as applicable per application) passes through a Toll Plaza without providing a valid method of payment. (V2B5cl:5.3.4.5).	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
081	ETC Identifier Discrepancy - Class	TCC or BOS/TCC or BOS generate in the event when a vehicle with a registered identifier (E-Tag or other like ISO Mag-Stripe card) shows any discrepancy to the registered details of the road user's account. (V2B5cl:5.3.4.5).	BOS/VGS/ITIS	Required
082	ETC/Identifier Discrepancy - Front VLN	TCC or BOS/TCC or BOS generate in the event when a vehicle with a registered identifier (E-Tag or other like ISO Mag-Stripe card) shows a front VLN discrepancy to that registered to the road user's account. (V2B5cl:5.3.4.5).	BOS/VGS/ITIS	Required
083	ETC/Identifier Discrepancy - Rear VLN	TCC or BOS/TCC or BOS generate in the event when a vehicle with a registered identifier (E-Tag or other like ISO Mag-Stripe card) shows a rear VLN discrepancy to that registered to the road user's account. (V2B5cl:5.3.4.5).	BOS/VGS/ITIS	Optional
084	ETC Identifier Discrepancy - PAN	TCC or BOS/TCC or BOS generate the incidents when an Invalid PersonalAccountNumber (PAN) or issuer number is detected when compared to the available registered users (including validation list from the TCH). (V2B5cl:5.3.4.5.d.i).	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
085	ETC Identifier Discrepancy - Issuer ID	TCC or BOS/TCC or BOS generate the incidents when an Invalid Issuer Identifier (IssuerIdentifier subset of the ContractProvider Attribute). (V2B5cl:5.3.4.5.d.ii)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
086	ETC Identifier Discrepancy - Tag Expired	TCC/TCC generate the incident when an expired Identifier is recorded. See Tag validity (PaymentMeansExpiryDate). (V2B5cl:5.3.4.5.d.iii)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes



087	ETC/Identifier Discrepancy - Identifier Redlisted	TCC/TCC generate the incident when an identifier (E-Tag or other like ISO Mag-Stripe card) is redlisted (or hotlisted). See (V2B5cl:5.3.4.5.d.iv).	BOS/VGS/ITIS	Required
088	ETC data exceptions - BST	TCC/TCC generate the incident when an ETC identifier is read and results in an exception: a) Tag does not respond to BST - (V2B5cl:5.3.4.5.d.v – see CI 6.6.1a)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
089	ETC data exceptions - Corrupt VST	TCC/TCC generate the incident when an ETC identifier is read and results in an exception: b) Tag return corrupt VST - (V2B5cl:5.3.4.5.d.v – see CI 6.6.1b)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
090	ETC data exceptions - GET.response	TCC/TCC generate the incident when an ETC identifier is read and results in an exception: a) GET.response not received or GET_STAMPED.response not received (V2B5cl:5.3.4.5.d.v – see CI 6.6.1c)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
091	ETC data exceptions – SET response	TCC/TCC generate the incident when an ETC identifier is read and results in an exception: a) SET.response not received - (V2B5cl:5.3.4.5.d.v – see CI 6.6.1h)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
092	ETC - Account Low Balance	TCC or BOS/TCC or BOS generate the incident when an ETC identifier is flagged with low balance account indicator. (V2B5cl:5.3.4.5.d.vi).	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
093	ETC - Tag Transaction Aborted	TCC or BOS/TCC or BOS generate the incident when an ETC identifier based transaction is aborted for whatever reason. (V2B5cl:5.3.4.5.d.viii).	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
094	ETC - Multiple Tags	TCC/TCC generate the incident in the event where multiple tags are read and queued without associating vehicles to each tag read. (V2B5cl:5.3.4.5). This includes multiple tags in one vehicle.	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
095	Release Vehicle from Queue	TCC or BOS/TCC or BOS to generate this incident where the TCC or BOS pass a command to the TCC to open an exit boom/barrier in order to allow any vehicle to proceed without processing a normal financial transaction. These incidents shall typically be associated with a VLN transaction or the Contractor granting the motorist credit due to some lane processing failure. (V2B5cl:5.3.4.5)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes

096	Image Capturing Requirement fail	BOS/ The BOS generates this incident in the event where the VGS or other image recording device fail to provide the required image material to verify the presence of a specific vehicle or the quality is of such nature that accurate verification of any event was not possible. (V2B5cl:5.3.4.5)	BOS/VGS/ITIS	Required for all ETC enabled Toll Lanes
097	Reserved			
098	Reserved			
099	Reserved			
100	Reserved			
101	Reserved			
10x	Reserved			
10x	Reserved			
10x	Reserved			
n	n <sup>th</sup> Incident	N <sup>th</sup> incident-Incidents to be mapped, unique to each toll system required where deviations were approved.		As required

**PS7.4.6 Transmitted Data**

Clause 7.4.6.2(a) add the following requirements to table 7-17:

File Type	Frequency	Interface deadlines for file transmission purposes	Type of Application
All recorded DCS Incident/Fault Log Data	Daily, the next calendar day	Within four (4) hours after midnight, the end of previous calendar day	Conventional
Validated Corrected DCS Incident/Fault Log data	Daily the next calendar day	Within twenty-four (24) hours after midnight, the end of the previous calendar day	Conventional

**PS7.4.6.7 DCS Incident/faults Log Data Transmission Format for Conventional Tolling Applications:**

Delete this Clause and replace with the following:

“DCS Incident/Faults Log Data Transmission Format for Conventional Tolling Applications:

This file will contain summarised DCS Fault Log data rolled-up per hour for each applicable incident and be named according to the naming convention below. Data transmitted via this DCS-Fault log file shall only contain incidents relating to the applicable DCS activities and not AVC/Lane related incidents. The file shall contain incident reference summaries of the DCS incidents only – refer to Table 7-15. Incidents generated by the DCS on behalf of any specific lane AVC which carries a specific Lane-ID will thus not be included in the DCS Fault Log File but included in the standard AVC Incidents/Faults Log File as per Clause 7.4.6.6 above. DCS incident/faults log data records with zero (0) counts shall be included in the file for each hour of the calendar day.

File Naming:

Example: 001\_2002\_04\_13.dfl

Table 722: DCS Incident / Faults Log Data Transmission Format

Description	Length	Sample
Predefined Control Centre ID	3	001
Spacer	1	_ (Underscore)
Operating Date : yyyy_mm_dd	10	2002_04_13
File extension .df: First data file .dfr: Retransmitted file	4	.df

#### File Content

Example: 001|20100423|1|15|99AA|0|049|3|1245|

Table 7-23: DCS Incident / Faults Log Data Transmission Format

Field	Field name	Req.	Data Type	Format	Sample
1	Predefined Control Centre ID	Yes	Number	999	001
2	Operating Date (yyyymmdd)	Yes	Number	99999999	20100423
3	Validated 0: Un-validated 1: Validated-Correct – No AVC transaction, incidents or audit files sequence numbers missing from any lane. 2: Validated-Incorrect – Any data discrepancy found based on the criteria in Validation status, 1 above.	Yes	Number	9	1
4	Hour (00-23)	Yes	Number	99	15
5	Lane ID (constant: 99AA)	Yes	Char (4)	99AA	99AA
6	AVC status mode: 7: Always use default state '7' in each record.	Yes	Number	9	7
7	DCS Incident ID (Only incidents applicable to DCS actions)	Yes	Number	999	052
8	DCS Critical Error Count (not applicable – default = 0)	Yes	Number	Long	0
9	DCS Incident count for the Hour	Yes	Number	Long	1245

Description	Length	Sample
Predefined Virtual Toll Plaza ID	3	001
Spacer	1	_ (Underscore)
Date & hour : yyyy_mm_dd	10	2002_04_13
File extension .df: First data file .dfr: Retransmitted file	4	.df

#### PS 7.5 BACK OFFICE SYSTEM AND TRAFFIC ANALYSIS SYSTEM INTERFACE

This interface shall not be required.

#### PS9 RELEVANT VPC SYSTEM SPECIFICATIONS

The Contractor shall not be required to comply with the requirements of this section.

#### PS10 SAMPLE SIZES FOR ACCURACY CALCULATIONS

## PS10.2 Axle-Based AVC Verification for Conventional/Hybrid Toll Plaza

### PS10.2.1.8 Sample sizes for AVC Accuracy Calculations

The minimum traffic sample sizes and maximum allowable sampling margins of error per toll lane for the initial AVC Accuracy Certification are specified as follows:

Designated Sample Lanes	Toll Class 1	Toll Class 2	Toll Class 3	Toll Class 4	Overall Count
Confidence Level	95%	95%	95%	95%	99%
Minimum Traffic Sample (n)	274 080	9 393	3 669	19 473	11 000
Maximum Error Margin (d)	0,024%	0,441%	0,634%	0,140%	0.078%

The Contractor shall ensure that all necessary measures, including inter alia selective toll lane usage in a Virtual Toll Plaza, are implemented to ensure that the minimum vehicle throughput levels are processed in each designated sample toll lane during the initial accuracy certification period.

The minimum sample sizes and maximum allowable sampling margins of error per Control Centre, for the Post Initial AVC accuracy Certification (continuous AVC Classification) are specified as follows:

<b>Gosforth Control Centre</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	1 124 480	29 261	11 337	48 519
Maximum Error margin (d)	0,012%	0,250%	0,361%	0,089%
<b>Dalpark Control Centre</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	610 389	21 726	8 530	42 732
Maximum Error margin (d)	0,016%	0,290%	0,416%	0,094%
<b>Leandra Control Centre</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	182 868	9 191	3 504	27 219
Maximum Error margin (d)	0,029%	0,446%	0,649%	0,118%
<b>Trichardtsfontein Control Centre</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	252 118	11 800	5 090	23 782
Maximum Error margin (d)	0,025%	0,393%	0,538%	0,126%
<b>Ermelo Control Centre</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	114 154	6 293	2 112	20 022
Maximum Error margin (d)	0,037%	0,538%	0,836%	0,138%

These values represent the minimum traffic samples that must be met over the accuracy monitoring period. As indicated in Volume 2 Book 4(a), the AVC Accuracy will be based on the total traffic throughput over the specified accuracy monitoring period per AVC accuracy category. If the total traffic throughput is less than these minimum traffic sample sizes, the accuracy monitoring period may be extended or an alternate minimum sample size determined using the formulas indicated, for the AVC accuracy category in question. This shall be at the discretion of the Employer Representative.

The minimum sample sizes and maximum allowable sampling margins of error per Virtual Toll Plaza for the Post Initial AVC accuracy Certification (continuous AVC classification), are specified as follows:

<b>Gosforth Mainline (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	537 657	18 387	6 543	26 184
Maximum Error margin (d)	0,017%	0,315%	0,475%	0,121%
<b>Gosforth Mainline (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	703 755	21 264	7 908	31 350
Maximum Error margin (d)	0,015%	0,293%	0,432%	0,110%
<b>Gosforth Local Ramps (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	1 021 026	23 061	9 135	40 092
Maximum Error margin (d)	0,012%	0,281%	0,402%	0,097%
<b>Gosforth Local Ramp (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	863 727	19 131	7 209	32 913
Maximum Error margin (d)	0,013%	0,309%	0,452%	0,107%
<b>Gosforth West Remote Ramp (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	100 677	2 499	1 545	7 542
Maximum Error margin (d)	0,039%	0,855%	0,977%	0,225%
<b>Gosforth West Remote Ramp (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	146 598	3 441	1 671	7 476
Maximum Error margin (d)	0,032%	0,728%	0,940%	0,226%
<b>Dalpark Mainline (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	849 708	31 581	12 327	61 818
Maximum Error margin (d)	0,013%	0,240%	0,346%	0,078%
<b>Dalpark Mainline (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	870 555	31 050	12 291	60 975
Maximum Error margin (d)	0,013%	0,242%	0,346%	0,079%
<b>Denne Road Remote Ramp (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	54 999	1 287	495	2 667
Maximum Error margin (d)	0,053%	1,191%	1,726%	0,378%
<b>Denne Road Remote Ramp (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	55 905	1 260	477	2 736
Maximum Error margin (d)	0,052%	1,203%	1,759%	0,373%
<b>Leandra Mainline (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	276 264	14 091	5 331	41 025

Maximum Error margin (d)	0,024%	0,360%	0,526%	0,096%
<b>Leandra Mainline (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	272 340	13 482	5 181	40 632
Maximum Error margin (d)	0,024%	0,368%	0,534%	0,097%
<b>Leandra Remote Ramps (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	29 211	2 052	942	5 670
Maximum Error margin (d)	0,072%	0,943%	1,251%	0,259%
<b>Leandra Remote Ramps (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	30 540	1 740	1 101	5 787
Maximum Error margin (d)	0,071%	1,024%	1,158%	0,256%
<b>Trichardtsfontein Mainline (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	348 993	15 900	6 666	29 514
Maximum Error margin (d)	0,021%	0,339%	0,470%	0,114%
<b>Trichardtsfontein Mainline (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	347 610	15 708	6 561	30 375
Maximum Error margin (d)	0,021%	0,341%	0,474%	0,112%
<b>Ermelo Mainline (East)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	172 617	9 543	3 240	30 555
Maximum Error margin (d)	0,030%	0,437%	0,675%	0,112%
<b>Ermelo Mainline (West)</b>	<b>Toll Class 1</b>	<b>Toll Class 2</b>	<b>Toll Class 3</b>	<b>Toll Class 4</b>
Confidence Level	95%	95%	95%	95%
Minimum Traffic Sample (n)	169 845	9 336	3 096	29 511
Maximum Error margin (d)	0,030%	0,442%	0,690%	0,114%

These values represent the minimum traffic samples that must be met over the accuracy monitoring period. As indicated in Volume 2 Book 4(a), the AVC Accuracy will be based on the total traffic throughput over the specified accuracy monitoring period per AVC accuracy category. If the total traffic throughput is less than these minimum traffic sample sizes, the accuracy monitoring period may be extended or an alternate minimum sample size determined using the formulas indicated, for the AVC accuracy category in question. This shall be at the discretion of the Employers Representative.

The minimum sample sizes and maximum allowable sampling margins of error per Toll Lane or Virtual Plaza for continuous AVC overall count accuracy, are specified as follows:

Lane or virtual plaza	Overall AVC Count
Confidence Level	99%
Minimum Traffic Sample (n)	11 000
Maximum Error margin (d)	0.078%

These values represent the minimum traffic samples that must be met over the accuracy monitoring period. If the total traffic throughput is less than these minimum traffic sample sizes, the accuracy monitoring period may be extended or an alternate minimum sample size determined using the formulas indicated, for the AVC accuracy category in question. This shall be at the discretion of the Employers Representative.

#### PS10.2.1.10

This paragraph to be modified to read as follows:

*“The AVC classification accuracy against which the accuracy requirement specified in Clause 10.2.1.1 shall be compared with for certification/penalty/incentive purposes, shall be the Measured AVC accuracy value plus the margin of error (d) based on sample size (n) over the Accuracy Monitoring Period, as follows:*

*AVC Classification Accuracy = (Measured AVC Classification Accuracy (AVCM) = Margin of error (d).”*

#### **PS10.2.1.17**

This clause to be deleted and replaced with the following:

*“For AVC Count Accuracy measurement purposes, the AVC Count error shall be total number of vehicles passages either not detected or incorrectly counted as AVC vehicles passages. This equates to the total number of “undercounts” plus the total number of “over counts” divided by the total number of actual verified and true vehicle passages which as passed over or through the AVC sensors, over the AVC Monitoring Period.”*

#### **PS10.2.1.18**

This clause to be deleted and replaced with the following:

*“Total Count Error therefore equals the Absolute Sum value of both “Under Counting” and “Over Counting.” “Over Counting” and “Under Counting” does not offset each other, but both append to the Total Count Error:*

*Count Error = ABS (“Over Counting”) + ABS (“Under Counting”).”*

#### **PS10.2.1.20 The AVC count accuracy verification procedure**

Add:

*“10.2.1.20. a) The Contractor and Employer’s Representative shall use the VGS, enhanced by the implementation of lane level ANPR, to verify and certify the AVC Count Accuracy and to report AVC count accuracy on a monthly basis.*

*For Initial AVC Count Accuracy verification, the Contractor shall use the data from the ANPR, VGS, DVSS and the AVC to report the AVC count accuracy per lane.*

1. *The Contractor shall identify and record the AVC count errors in the lane selected to verify count accuracy, using the VGS. The Contractor shall achieve this by auditing possible undetected passages, using the VGS. The Contractors VGS auditor will evaluate each event using the ANPR, side view, front view, and booth camera video recording and flag each over (multiple reporting of a single passage) and under (undetected passage) count for one lane a number of passages exceeding the specified sample size. The VGS shall retain the auditors’ findings and allow a post audit review of such findings. AVC Count errors shall include transactions generated incorrectly (non-existing passage or multiple passages belonging to the same vehicle) by the AVC and transactions missed by the AVC. The events audited by the Contractor, utilising the VGS shall include but not be limited to:*
  - *Run throughs,*
  - *Irregular vehicle movements reported by the AVC, including, roll-back, reverse entry, vehicle standing and reverse roll-back,*
  - *Light vehicles with more than 3 axles,*
  - *Passages with more than 8 axles, and*
  - *Video motion-based passage for which no vehicles were registered by the AVC.*
2. *The Contractor shall use the findings of the count accuracy verification, described above, to find similar AVC errors for all lanes. The Contractor shall, based on detected AVC count errors, identify AVC related error messages and conditions that are linked to AVC count errors in all lanes. The Contractor shall use such findings to identify AVC count error in every lane and capture the audit findings for each event on the VGS. The VGS auditors’ findings shall be retained on the VGS and the related video for 6 months. The Contractor shall, for all lanes, use the results of the error identification to:*
3. *Detect and record the total traffic by adding undetected vehicle passages and deducting incorrectly generated passages from the total AVC traffic. The Contractor shall create missing transactions on the*

*BOS system at the correct time and with the correct visually verified classification. The AVC class for the created transactions shall be "NC".*

4. *Combine the daily traffic and count errors values for the evaluation period and calculate the AVC count accuracy for all lanes.*

*The Contractor shall keep records of the audit findings during the verification process and list the details of all hours investigated and the allocation of errors and differences. The Contractor shall at the end of the evaluation periods generate an initial AVC count accuracy verification report that include all the details of the events audited and the event details of each individual AVC error recorded."*

*"10.2.1.20. b) For Post Initial AVC Count Accuracy verification the Contractor shall use the VGS, identified messages/events and conditions detected during the initial verification period to record and report the AVC count accuracy for each virtual plaza for the month:*

- i) *The Contractor shall for every calendar day for the month, record total traffic and AVC count errors. The Contractor shall detect and record the total AVC count errors in all lanes. The Contractor shall, based on previously detected AVC count errors, identify AVC related error messages and conditions linked to AVC count errors, and use the VGS to evaluate the side view camera video recording for all such AVC error messages and conditions and record every identified AVC count error. The VGS auditors' findings shall be retained on the VGS and the related video for 6 months. The Contractor shall create transactions on the BOS system at the correct time and with the correct visually verified classification for all transactions not detected by the AVC. The AVC class for the created transactions shall be "NC".*
- ii) *Detect and record the total traffic by adding undetected vehicle passages and deducting incorrectly generated passages from the total AVC traffic per virtual plaza.*
- iii) *Combine the daily traffic and count errors values per virtual plaza for the month and calculate the AVC count accuracy.*

*The Contractor shall keep records of the audit findings during the verification process and list the details of all hours investigated and the allocation of errors and differences. The Contractor shall report the AVC count accuracy monthly as specified (KPI 3d)."*



## **C3.2.5 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATION FOR OPERATIONS AND MAINTENANCE: ELECTRONIC TOLL COLLECTION (VOLUME 2 BOOK 5)**

The number of each Clause in particular specifications in this section consists of the prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specification for the Operations and Maintenance: Electronic Toll Collection (Volume 2 Book 5). The number of any new Clause which does not form part of any Clause in the Standard Specification for the Operations and Maintenance: Electronic Toll Collection (Volume 2 Book 5), and which is included herein, is also prefixed by PS followed by a new number. Such new numbers follow on the last Clause used in the relevant section of the Standard Specification for the Operations and Maintenance: Electronic Toll Collection (Volume 2 Book 5).

### **PS1 DEFINITIONS AND TERMS PERTAINING TO THIS DOCUMENT**

#### **PS 1.1.1.8 Interpretation**

Add the following Clause:

*“PS1.1.1.8 The TCH has been deployed successfully and therefore all references to the TCH which is or needs to be deployed/established shall be read as having been successfully installed, deployed and has been operational over an extended period of time. “*

#### **PS1.3 Definitions**

Add the following definitions:

*“**Merchant Agreement**” The term “Merchant Agreement” shall mean the TA/TCH Service Level Agreement (SLA). The Service Level Agreement sets out the operational rules of engagement between the TA and the TCH. Refer to Part E of Volume 4 for the latest SLA.”*

*“**Business Rules**” The term “Business Rules” used in this document shall have the same meaning and reference to the Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability - Business Rules.”*

*“**Disastrous Event**” The term “Disastrous Events” and “Catastrophic Event” used in this document and related documents, shall have the similar if not the same meaning, depending on the context used in, as an “Exceptional Event” as defined in Volume 1 Book 1 (FIDIC). For purposes of processing ETC transactions or interaction with the TCH or any other service used to communicate with the TCH, the term “Catastrophic Event” is used. However, the term “Catastrophic Event” is used in the ETC/TCH environment when processes fail for whatever reason and cannot be restored within the allowed performance parameters. Responsibility and/or Cause off for any failure is typically identified and allocated, post facto and does not equate to the traditional Force Majeure or Exceptional Event.”*

### **PS2 PURPOSE, SCOPE AND REFERENCE DOCUMENTS**

#### **PS 2.1 Purpose and Scope**

The Contractor is to note that Dedicated ETC toll lanes has been installed at Dalpark and Gosforth mainline Toll Plazas in terms of the requirements in the Standard Specifications for the Operations and Maintenance of CTROM Projects: Toll systems (Volume 2 Book 4a) and in the Standard Specification for Operation and Maintenance of CTROM Projects: Electronic Toll System Collector (ETC) (Volume 2 Book 5).

The six (6) Dedicated ETC toll lanes will be accepting, processing, submitting and reconciling tag transactions from the Commencement Date of the Operations Service Period.

The remainder of the toll lanes for all the Toll Plazas on the N17 Toll Road, are mixed Manual/ETC toll lanes and will be accepting, processing, submitting and reconciling tag transactions from the Commencement Date of the Operations Service Period.

**The Contractor must ensure that the upgrade/new toll system meets the following requirements**

1. It is a requirement for the Contractor to ensure that:
  - 1.1. The toll system makes provision for the integration of a tag reader, and associated interface software, required in any Lane, in order to implement Mixed/Manual or Dedicated ETC Lane functionality;
  - 1.2. The toll system is capable of accepting electronic tag as a valid Payment Mechanism and is capable of meeting all the requirements as specified in the Contract relating to the processing of such transactions from toll lane level to the Back Office System, as well as the transmission of transaction records from the Back Office to the Transaction Clearing House (TCH);
  - 1.3. The toll system is capable of accurately detecting, classifying, processing transaction records and provides sufficient information to accurately conclude vehicle passage transactions from the Mixed/Manual ETC and from the Dedicated ETC toll lanes.
  - 1.4. The Contractor shall provide, install, integrate and maintain high speed toll lane exit boom barriers, restricting passage to any vehicle type across the entire width of all toll lanes, if not already installed in all toll lanes from the Commencement Date. Automated exit booms shall be controlled by the TCC and shall incorporate a safety device/s safeguarding against the closure of any such barrier during a vehicle passage over or through the AVC sensors, damaging any vehicle. Separation of vehicles shall be accomplished by means of such booms in the Mixed/Manual ETC and Dedicated ETC toll lanes. The Dedicated ETC toll lanes shall also incorporate additional vehicle separation and axle counting devices to accurately determine vehicle position identification and vehicle flow through the Dedicated ETC toll lane;
  - 1.5. The toll system caters for the recording of the Manual Collector Vehicle classification (MVC), the tag vehicle class (EVC), the Automatic Vehicle Classification System (AVC) vehicle class as well as the verified and corrected vehicle class (SVC).
  - 1.6. In Mixed/Manual and Dedicated ETC Lanes, the following:
    - 1.6.1. The TCC shall have an output signal ready, in addition to the existing OHLS green arrow signal, in order to switch the ETC overhead mounted lane sign (ETC OHLS). It shall be required that the lane control be maintained by the toll collector and that the tag transaction in such toll lanes not be processed without an MVC captured on the toll system. A passage transaction without an MVC class shall be considered to constitute a violation passage or Run-Through.
    - 1.7. The toll system is capable of interfacing with the required ETC Equipment and interfaces that comply with the relevant standards in Clause 9.2.1 of the Standard Specification for Operations and Maintenance: Electronic Toll Collection (ETC). In terms of tags, the Contractor shall demonstrate that the toll system can interface to all of the Employers approved "Pre-Qualified" tags. A list of such pre-qualified tags is available on request.
2. The ETC requirements will, in its entirety or part thereof, be triggered by Employers for implementation. The following is noted:
  - 2.1. The toll system is capable of accepting, processing and clearing tag transactions as specified in the Standard Specification for Operations and Maintenance: Electronic Toll Collection (ETC) and attention is drawn to Clause 5.3 of the Standard Specification for Operations and Maintenance: Electronic Toll Collection (ETC): Responsibilities of the Toll Agency. The Contractor toll system shall, however, maintain the functionality for accounts that are honoured by means of an ISO bank credit card which shall be honoured via the existing bank interface described elsewhere.
  - 2.2. It shall not be required that the Contractor prove interoperability by using two (2) different tag readers from two un-related suppliers. The Contractor shall however demonstrate that the toll system shall successfully accept and process toll transactions from all the Prequalified Tag suppliers, or from all the different tags issued by the TCH.
3. If the TCH is commissioned before and operational by the Commencement Date, then the phase specified within Clause 3.4 of the Standard Specification for Operations and Maintenance: Electronic Toll Collection (ETC): Interoperability of ETC systems deployed before the TCH, will not be applicable.
4. The Contractor shall only be remunerated for the cost relating to the procurement and installation and successful commissioning of ETC related equipment and functionality on a proven cost plus mark-up

basis if and when the Employer decides to continue with the implementation of ETC outside those options described in the Schedule of Payments/Cost Matrix. This shall include but not limited to the procurement and installation of:

- 4.1. Signage, OHLS and User Fare Displays not described in the Contract;
- 4.2. The development of specific requirements of the phase specified within Clause 3.4 of the Standard Specification for Operations and Maintenance: Electronic Toll Collection (ETC).
5. The Contractor shall carry all costs relating to any other software modifications, upgrades and enhancements to the toll system required for the implementation of ETC, not specifically excluded above.
6. The Contractor shall carry all costs relating to the administration of tags.
7. Requirements specific relating to the Functional Compliance requirements of the toll system. The Nominated Subcontractor shall provide the necessary procedures, configuration, equipment and test vehicles to test and verify the correct and compliance functioning of the following:
  - 7.1. Upon request, the Contractor shall receive from Employer, as a minimum five (5), sample tags from every "Prequalified" Tag supplier (to serve as test transaction test input data), together with five (5) legacy tags which shall be sourced from the Bakwena Platinum Corridor Concessionaire (BPCC). This shall mean that the compliance test shall consist of the capturing of fictitious tag Reader/interface data into the toll lane computer to simulate the tag communication (bi-directional) process.
  - 7.2. As with the rest of the toll system, the Contractor shall bear all costs relating to the compliance testing of all ETC requirements.

#### **PS 8.5 INFORMATION TO ROAD USERS**

Replace subclause 8.5.2 (Before a Toll Plaza) with the following:

*The Contractor shall provide a "Tags Accepted" road sign of 2.14 by 1.2 m in the approach to the Toll Plaza, as per the following image.*

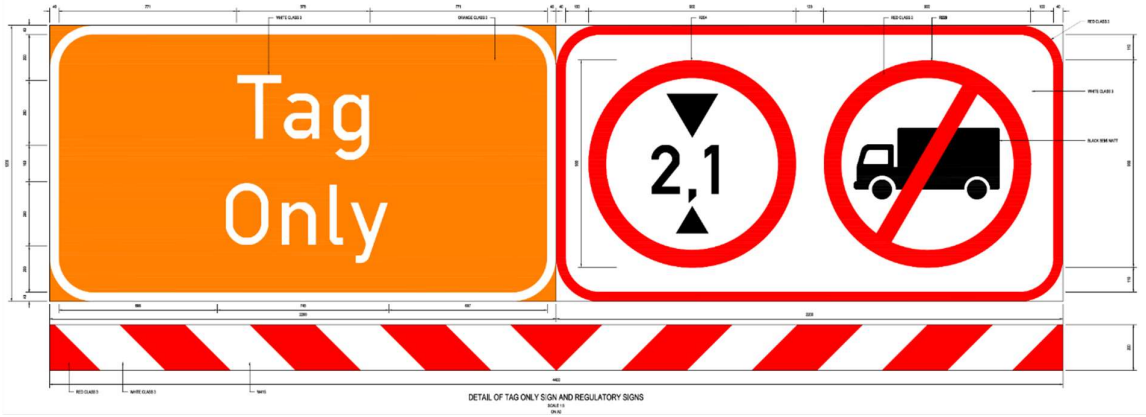


*The Contractor shall provide a "HEAVY VEHICLES KEEP LEFT" road sign of 3.656 by 1.2 m in the approach to the Toll Plaza, as per the following image.*



Replace subclause 8.5.3 (At the Toll Plaza selecting the correct lane)

The Contractor shall provide two road signs of 2.2 by 1.2 m each, together with a chevron sign at the bottom on a lane height restrictor for dedicated ETC lanes, as per the following image.



The Contractor shall provide 2 "Dedicated ETC" road signs of 0.938 by 0.720 m on both sides of the entrance to the Dedicated ETC Lane, as per the following image.



### **PS 8.6 FIXED SIGNS ON THE TOLL PLAZA CANOPY**

Delete clause 8.6 (FIXED SIGNS ON THE TOLL PLAZA CANOPY).

### **PS 8.7 CHANGEABLE MESSAGE SIGNS**

Delete clause 8.7 (CHANGEABLE MESSAGE SIGNS).

### **PS 8.8 OVERHEAD LANE SIGNS**

Delete subclause 8.8.4, and replace it with:

*“8.8.4 The green arrow and red cross sign in Figure 8-11, shall be used to indicate if a mixed ETC lane open (green arrow) and closed state (red cross).”*

At the end of subclause 8.8.5, add the following:

*“8.8.6 The typical specifications of the ETC OHLS (e-sign) shall be:*

- a) An amber colour in the 590 to 610 nm range wavelength*
- b) Display the letter “e”, which design, and font type needs to be approved by the Employer at first*
- c) The same size as the green arrow and red cross OHLS, mounted next to each other and aligned horizontally*
- d) Constructed from a matrix of high brightness surface mount LEDs designed for outdoor use with a IP65 rating as a minimum*
- e) Use less than 50 watts from a 240 Volt ac supply*
- f) Switchable from the Lane Controller to indicate a dedicated, mixed or closed ETC lane configuration*
- g) Automatically dimmable in low light conditions*
- h) Mounted on the approaching edge of the Toll Plaza Canopy above the centreline of each Lane facing the direction of the approaching traffic*
- i) Visible at least 500m from the toll plaza*
- j) Have a wide viewing angle so that it is still visible just before the entrance to the Toll Lane*
- k) Have a high MTBF of more than 60 000 hours*
- l) Have suitable lightning protection”*

**C3.2.6 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATIONS FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: PERFORMANCE MEASUREMENT (VOLUME 2 BOOK 6A)**

The number of each Clause in a Particular Specifications in this section consists of the Prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specification for the Operations and Maintenance: Performance Measurement (Volume 2 Book 6a). The number of any new Clause which does not form part of any Clause in the Standard Specification for the Operations and Maintenance: Performance Measurement (Volume 2 Book 6a), and which is included herein, is also prefixed by PS followed by a new number. Such new numbers follow on the last Clause used in the relevant section of the Standard Specification for the Operations and Maintenance: Performance Measurement (Volume 2 Book 6a).

**PS3 PERFORMANCE MEASUREMENT**

**PS3.1.2: Key Performance Indicators**

**PS3.1.2.3**

The third line of this subclause to be modified to read as follows:

*“... Employer may submit a request to the Performance Review Committee to introduce ...”*

At the end of the subclause, adding the following:

*“...being delivered. A National Performance Review (NPRC) Committee will be held at least twice (2) a year to align all CTROM Performance Measurement Models. A member or members from the Contractor shall attend these meetings.”*

**PS3.1.2.6**

The subclause 3.1.2.6 to be deleted and replaced with the following:

*“Unless otherwise mutually agreed between the Parties, this Performance Management Regime shall be reviewed by the Performance Review Committee when required or at least every four (4) months from the Commencement Date of Operations Services Period. The first Performance Review Committee meeting must be held within four (4) months from the Commencement Date of the Operations Service Period in order to finalise reports and report formats for input to the Performance Measurement Model.”*

**PS3.1.2.9**

This subclause to be modified to read as follows:

*“The derivation of the Performance scores is a multi-stage process that shall be derived from operational processes and timely reporting from the Nominated Subcontractor's Toll System to the Contractor, Employer's Representative and the Employer at prescribed intervals.”*

**PS3.2.2: Aggregation of Performance Scores**

**PS3.2.2.2**

Delete subclause 3.2.2.2 and replace with the following:

*“The total Performance Scores for all critical success factors shall be summed to derive the total Performance Score per Control Centre per month.”*

**PS3.2.4: Example of Calculating KPI**

**PS3.2.4.5**

The first bullet to be modified to read as follows:

- “Lane grouping A with accuracy of 99.3% and lane grouping B with an accuracy of 99.99% for the month.”

**PS3.2.4.10**

The Clause to be modified to read as follows:

“The total score for Control Centre is  $-105 + 2.7 = -102.3$ ”.

**PS3.2.4.11**

Replace the table under this Clause with the following:

<b>Critical Success Factor</b>	<b>Performance Areas</b>	<b>KPI Number</b>	<b>KPI Name</b>	<b>SCORE</b>
<b>Public Awareness and Understanding</b>	<b>Customer Relations</b>	CT5	Uninterrupted Electricity Supply	0.0
		CT6b	Call abandon rate, including IVR calls held pending transfer to a Call centre Operator	0.0
		CT6c	Call queuing time, including IVR calls held pending transfer to an Operator	-10.0
		CT6d	Call Centre Level of Service (LOS) - Proportion of calls blocked in peak demand period	-20.0
		CT10	Charging and charge reconciliation processes - accuracy	0.0
		CT11	Customer Satisfaction	20.0
		CT13	ETC Transaction Records submitted to TCH – timeliness	50.0
		CT14	Account Registration Processing - accuracy	0.0
			<b>SUB-TOTAL FOR CUSTOMER RELATIONS:</b>	<b>40.0</b>
	<b>Marketing Support</b>	CT18	Tactical marketing programme Level of Service (LOS)	10.0
			<b>SUB-TOTAL FOR MARKETING SUPPORT:</b>	<b>10.0</b>
	<b>Channel Availability</b>	CT6a	Call Centre service availability, including IVR services	120.0
		CT9	POP Customer Services Facilities - availability	0.0
			<b>SUB-TOTAL FOR CHANNEL AVAILABILITY:</b>	<b>120.0</b>
		<b>TOTAL FOR PUBLIC AWARENESS AND UNDERSTANDING:</b>	<b>170.0</b>	
<b>Revenue Maximisation</b>	<b>Charging Effectiveness</b>	CT4a	Daily AVC Data Transmission – Un-validated	-15.0
		CT4b	Daily AVC Data Transmission – Validated	-20.0
		CT4c	Daily MIS Data Transmission	-40.0
		CT4d	Monthly MIS Data Transmission	-10.0

<b>Critical Success Factor</b>	<b>Performance Areas</b>	<b>KPI Number</b>	<b>KPI Name</b>	<b>SCORE</b>
		CT4e	Monthly MIS Income Data Transmission	-100.0
			<b>SUB-TOTAL FOR CHARGING EFFECTIVENESS:</b>	<b>-185.0</b>
	<b>Charging Accuracy</b>	CT3c	Automatic Vehicle Classification Accuracy – Axle-based	2.0
		CT3d	AVC Count	4.0
			<b>SUB-TOTAL FOR CHARGING ACCURACY:</b>	<b>6.0</b>
			<b>TOTAL FOR REVENUE MAXIMISATION:</b>	<b>-179.0</b>
	<b>Operational Performance</b>	<b>Quality Control</b>	CT16	Maintenance
CT17			Transactions acceptable to TCH and VPC - proportion	0.0
			<b>SUB-TOTAL FOR QUALITY CONTROL:</b>	<b>-40.0</b>
<b>Effectiveness</b>		CT1a	Repair Time Compliance – Severity Level 1 Fixed Assets	0.0
		CT1b	Repair Time Compliance – Severity Level 2 Fixed Assets	0.0
		CT1c	Repair Time Compliance – AVC	-20.0
		CT1d	Repair Time Compliance – Severity Level 1 Semi-Fixed Assets	0.0
		CT1e	Repair Time Compliance – Severity Level 2 Semi-Fixed Assets	0.0
			<b>SUB-TOTAL FOR EFFECTIVENESS:</b>	<b>-20.0</b>
		<b>TOTAL FOR OPERATIONAL PERFORMANCE:</b>	<b>-60.0</b>	
<b>System Health</b>	<b>Service Availability</b>	CT2	SCADA Service Availability	0.0
		CT3a	AVC Availability – (Critical Errors)	0.0
		CT3b	AVC Availability – (Serious Errors)	0.0
		CT12	ETC lane availability	-50.0
		CT15	QLS –availability	0.0
			<b>SUB-TOTAL FOR SERVICE AVAILABILITY:</b>	<b>-50.0</b>
			<b>TOTAL FOR SYSTEM HEALTH:</b>	<b>-50.0</b>
<b>Cooperative Relationships</b>	<b>Reporting</b>	CT8a	Compliance with Employer’s reporting requirements – Critical Reports	0.0
		CT8b	Compliance with Employer’s reporting requirements – Non-Critical Reports	0.0
			<b>SUB-TOTAL FOR REPORTING:</b>	<b>0.0</b>
	<b>Governance</b>	CT19	Contract Performance Management	10.0
			<b>SUB-TOTAL FOR GOVERNANCE:</b>	<b>10.0</b>
			<b>TOTAL FOR COOPERATIVE RELATIONSHIPS:</b>	<b>10.0</b>
		<b>GRAND TOTAL:</b>	<b>-109.0</b>	

**PS3.2.4.13**

Modify this subclause to read as follows:

“The Total Score for the Control Centre in the example is -109 points.”



### **PS3.3.2: Reporting Requirement**

#### **PS3.3.2.2**

This subclause to be deleted and replaced with the following:

*“The Employer’s Representative shall be responsible to produce the Performance Measurement Model once per month, based on the Contractor’s performance and information provided. The Performance Measurement Model shall also include all the Section 6 penalties in this model. Together with the Performance Measure Model the ER shall also provide a penalty balance sheet which shall also reflect deductions made to the Contractor’s Certificate.”*

#### **PS3.3.2.4**

This subclause to be deleted and replaced with the following:

*“To ensure that the provision of services by the Contractor are managed effectively from the Commencement of Operations Services, Performance Review meeting, held as the Performance Review Committee, shall be convened by Employer’s Representative as and when required and agreed between the parties, but not less than every four (4) months.”*

#### **PS3.3.2.5**

This subclause to be deleted and replaced with the following:

*“The Employer’s Representative shall produce the performance report by ten (10) working days after the Contractor has submitted all the required reporting, as stipulated in the Standard Specifications for Operations and Maintenance of CTROM projects: General (Volume 2 Book 2a)” or as otherwise instructed by the Employer Representative to satisfy the input requirements to the Performance Measurement Model.”*

#### **PS.3.3.2.6**

This subclause to be deleted.

#### **PS3.3.2.7**

Ten (10) business days.

#### **PS3.3.2.8**

This subclause to be deleted and replaced with the following:

*“For the purposes of performance measurement, the Performance Review Committee will include the following:*

- a) The Employer’s Executive (or delegated senior official);*
- b) The Employer’s Representative (can include another delegated member);*
- c) The Contractor’s Representative (can include another delegated member);*
- d) Auditing Body, as and when required by the Employer (to provide benchmarking and advice on performance issues)”*

### **PS4 KEY PERFORMANCE INDICATORS (KPI)**

#### **PS4.1 Key Performance Indicators**

The weightings and specifications to be modified to read as follows:

Ref	Name	Score weighting, target service levels and other specifications				
		Specifications, target service levels and calculation procedures	Scores per increment for Service Level Bands			
			Above target ('r')	Band 1 ('x')	Band 2 ('y')	Band 3 ('z')
CT1a	Repair Time Compliance – Severity Level 1 - Employer Facilities	-	0.0	-1.5	-3.0	-15.0
CT1b	Repair Time Compliance – Severity Level 2 - Employer Facilities	-	0.0	-0.8	-1.5	-7.5
CT1c	Repair Time Compliance – AVC and TCC	-	0.0	-1.8	-2.5	-15.0
CT1d	Repair Time Compliance – Severity Level 1 Permanent Design Built Assets	-	0.0	-1.0	-2.0	-10.0
CT1e	Repair Time Compliance – Severity Level 2 Permanent Design Built Assets	-	0.0	-0.8	-1.5	-7.5
CT2a	SCADA Availability	95%	0.0	-0.8	-1.5	-15.0
CT2b	VGS Availability (Critical Errors)	95%	0.0	-3.0	-5.0	-15.0
CT2c	QLS Availability (Critical Errors)	-	0.0	-3.0	-5.0	-15.0
CT2d	QL1 Availability (Critical Errors)	-	0.0	-3.0	-5.0	-15.0
CT2e	QL2 Availability (Critical Errors)	-	0.0	-3.0	-5.0	-15.0
CT2f	BOS Availability (Critical Errors)	-	0.0	-3.0	-5.0	-15.0
CT2g	PGW Availability (Critical Errors)	-	0.0	-3.0	-5.0	-15.0
CT3a	AVC Availability (Critical Errors)	-	0.0	-5.0	-10.0	-35.0
CT3b	AVC Availability (Serious Errors)	-	0.0	-3.0	-5.0	-15.0
CT3c	Automatic Vehicle Classification for Class 1	-	0.03	-0.25	-0.75	-5.0
CT3c	Automatic Vehicle Classification for Class 2	-	0.03	-0.25	-0.75	-8.0
CT3c	Automatic Vehicle Classification for Class 3	-	0.06	-0.25	-0.75	-5.0
CT3c	Automatic Vehicle Classification for Class 4	-	0.06	-0.25	-0.75	-5.0
CT3d	AVC Count	-	0.15	-1.0	-2.0	-10.0
CT4a	Daily AVC Data Transmission – Un-validated	-	0.0	-5.0	-10.0	-40.0
CT4b	Daily AVC Data Transmission – Validated	-	0.0	-8.0	-18.0	-50.0
CT4c	Daily Back-Office Data Transmission	-	0.0	-8.0	-18.0	-50.0
CT4d	Monthly Back-Office Data Transmission	-	0.0	-12.0	-18.0	-60.0
CT4e	Monthly Back-Office	-	0.0	-12.0	-18.0	-60.0

Ref	Name	Score weighting, target service levels and other specifications				
		Specifications, target service levels and calculation procedures	Scores per increment for Service Level Bands			
			Above target ('r')	Band 1 ('x')	Band 2 ('y')	Band 3 ('z')
	<i>Income Data Transmission</i>					
CT6a	<i>Call Centre service availability, including IVR services</i>	<i>If there is not direct one-to-one relationship between Route Call Centres and Control Centres, the average monthly score across all Route Call Centres shall be applicable to each Control Centre.</i>	0.5	-1.0	-1.5	-10.0
CT6c	<i>Route Call Centre call queuing time, including IVR calls held pending transfer to an operator</i>	-	N/A	-0.2	-0.5	-10
CT8a	<i>Compliance with Employer's reporting requirements – Critical Reports</i>	-	-	-	-	-
	<i>Hourly, Daily &amp; Monthly Traffic Report</i>	<i>Report submission within contractual allowable time</i>	0	-5.0	-10.0	-60.0
	<i>Discount / Exempt Report</i>	<i>Report submission within contractual allowable time</i>	0	-4.0	-8.0	-40.0
	<i>Account Status</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-5.0	-30.0
	<i>Payment Trends</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-5.0	-30.0
	<i>Day/Month Closures</i>	<i>Report submission within contractual allowable time</i>	0	-4.0	-8.0	-40.0
	<i>AVC Accuracies</i>	<i>Report submission within contractual allowable time</i>	0	-4.0	-8.0	-40.0
	<i>System Availability</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-6.0	-35.0
	<i>Equipment failures</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-5.0	-30.0
	<i>Response &amp; Repair times</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-6.0	-35.0
	<i>Problem Data</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-6.0	-35.0
	<i>Support Reports</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-5.0	-30.0
	<i>Stock &amp; Spares</i>	<i>Report submission within</i>	0	-3.0	-5.0	-30.0

Ref	Name	Score weighting, target service levels and other specifications				
		Specifications, target service levels and calculation procedures	Scores per increment for Service Level Bands			
			Above target ('r')	Band 1 ('x')	Band 2 ('y')	Band 3 ('z')
		<i>contractual allowable time</i>				
	<i>Performance Measurement Report</i>	<i>Report submission within contractual allowable time</i>	0	-4.0	-8.0	-40.0
	<i>KPI 11</i>	<i>Report submission within contractual allowable time</i>	0	-4.0	-8.0	-40.0
	<i>KPI 19</i>	<i>Report submission within contractual allowable time</i>	0	-4.0	-8.0	-40.0
CT8b	<i>Compliance with Employer's reporting requirements – Non-Critical Reports</i>	-	-	-	-	-
	<i>Transaction Tariff report</i>	<i>Report submission within contractual allowable time</i>	0	-1.0	-2.0	-10.0
	<i>Discount Structure Report</i>	<i>Report submission within contractual allowable time</i>	0	-1.0	-2.0	-10.0
	<i>Transaction details report</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-3.0	-15
	<i>Class discrepancy acknowledgement</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-3.0	-15
	<i>Access Control</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-4.0	-20.0
	<i>Version Control</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-3.0	-15
	<i>MTBF</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-4.0	-20.0
	<i>Incident Report</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-4.0	-20.0
	<i>Dashboard Report</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-3.0	-15
	<i>Upgrade Reports</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-3.0	-15
	<i>Contractual Reporting</i>	<i>Report submission within contractual allowable time</i>	0	-3.0	-6.0	-30.0
	<i>Generator</i>	<i>Report submission within contractual allowable time</i>	0	-2.0	-4.0	-20.0
	<i>UPS</i>	<i>Report submission within</i>	0	-2.0	-4.0	-20.0

Ref	Name	Score weighting, target service levels and other specifications				
		Specifications, target service levels and calculation procedures	Scores per increment for Service Level Bands			
			Above target ('r')	Band 1 ('x')	Band 2 ('y')	Band 3 ('z')
		contractual allowable time				
	Earthing & Lighting Protection	Report submission within contractual allowable time	0	-2.0	-4.0	-20.0
	Corrosion Protection	Report submission within contractual allowable time	0	-2.0	-4.0	-20.0
CT9	POP Customer Service Facilities - availability	If there is not direct one-to-one relationship between POP Customer Service Facility and Control Centres, the average monthly score across all POP Customer Service Facilities shall be applicable to each Control Centre.	1	-1	-1.5	-8
CT10	Charging and charge reconciliation processes - accuracy	At least 99.99% of ETC Transactions should be reconciled correctly (0.01% incorrectly) Where the accuracies per Control Centre are not available, the overall accuracy shall be applicable to each Control Centre.	0	-2	-5	-50
CT11	Customer Satisfaction	If separate scores cannot be associated to each Control Centre, the overall score shall be applied to each Control Centre.	1.5	-1.5	-2.5	-15
CT12	ETC lane availability	ETC Lanes should be available for at least 98% of the time in a day.	0	-1.5	-3	-15
CT13	ETC Transaction Records submitted to TCH – timeliness.	Measurement of KPI to commence when both commencement of ETC tolling as taken place and the ETC transaction market share for the Control Centre is 50% or more for three consecutive months. This KPI aims to incentive close to real time transaction forwarding to the TCH. The incentive will be applicable when 85% or	0.8	0.0	0.0	0.0

Ref	Name	Score weighting, target service levels and other specifications				
		Specifications, target service levels and calculation procedures	Scores per increment for Service Level Bands			
			Above target ('r')	Band 1 ('x')	Band 2 ('y')	Band 3 ('z')
		<i>more of ETC transactions per Control Centre are forwarded to the TCH within 2 hours ('n' = 2 hours)</i>				
CT14	<i>Account Registration Processing - accuracy</i>	<i>97.5% accuracy</i>	<i>0</i>	<i>-1</i>	<i>-2</i>	<i>-10</i>
CT15	<i>QLS –availability</i>	<i>The QLS should be available for at least 99.7% of the time in a month.</i>	<i>0</i>	<i>-0.25</i>	<i>-0.5</i>	<i>-10</i>
CT16	<i>Maintenance</i>	<i>n/a</i>	<i>2</i>	<i>-3</i>	<i>-10</i>	<i>-30</i>
CT18	<i>Tactical marketing programme Level of Service (LOS)</i>	<i>If separate scores cannot be associated to each Control Centre, the overall score shall be applied to each Control Centre for the duration of a measurement period.</i>	<i>1</i>	<i>-1</i>	<i>-2.5</i>	<i>-15</i>
CT20	<i>Route Patrol Qualification</i>		<i>10.0</i>	<i>-5.0</i>	<i>-10.0</i>	<i>-15.0</i>
CT21	<i>Fresh Air Supply Management</i>		<i>0.0</i>	<i>-3.0</i>	<i>-4.0</i>	<i>-12.0</i>

Table 4-1:

Replace the relevant columns as shown below for “CT16” only with the contents shown here:

	<b>Target Service Level</b>	<b>Band 1</b>	<b>Band 2</b>	<b>Band 3</b>
CT16	<i>&gt; 55% ('r' pts per 1.0%)</i>	<i>45% to &lt; 50% ('x' pts per 1.0%)</i>	<i>40% to &lt; 45% ('y' pts per 1.0%)</i>	<i>&lt; 40% ('z' pts per flat rate)</i>

Table 4-1: Add the following to the table under the relevant KPI numbers:

CT2b	Service Availability	VGS Availability (Critical Errors)	The number of occurrences that the VGS downtime, related to Critical Mode, in a VGS exceeds the time specified in Volume 2 Book 4a during a month.	Commencement of Operations Services	Zero occurrences	1 to 10 ('x' pts per occurrence)	11 to 20 ('y' pts per occurrence)	More than 20 ('z' pts flat rate)	CTROM limits 20 occurrences
CT2c	Service Availability	QLS Availability (Critical Errors)	The number of occurrences that the QLS downtime, related to Critical Mode, in a QLS exceeds the time specified in Volume 2 Book 4a during a month.	Commencement of Operations Services	Zero occurrences	1 to 10 ('x' pts per occurrence)	11 to 20 ('y' pts per occurrence)	More than 20 ('z' pts flat rate)	CTROM limits 20 occurrences
CT2d	Service Availability	QL1 Availability (Critical Errors)	The number of occurrences that the QL1 downtime, related to Critical Mode, in a QL1 exceeds the time specified in Volume 2 Book 4a during a month.	Commencement of Operations Services	Zero occurrences	1 to 10 ('x' pts per occurrence)	11 to 20 ('y' pts per occurrence)	More than 20 ('z' pts flat rate)	CTROM limits 20 occurrences
CT2e	Service Availability	QL2 Availability (Critical Errors)	The number of occurrences that the QL2 downtime, related to Critical Mode, in a QL2 exceeds the time specified in Volume 2 Book 4a during a month.	Commencement of Operations Services	Zero occurrences	1 to 10 ('x' pts per occurrence)	11 to 20 ('y' pts per occurrence)	More than 20 ('z' pts flat rate)	CTROM limits 20 occurrences
CT2f	Service Availability	Back Office Availability (Critical Errors)	The number of occurrences that the BOS downtime, related to Critical Mode, in a BOS exceeds the time specified in Volume 2 Book 4a during a month.	Commencement of Operations Services	Zero occurrences	1 to 10 ('x' pts per occurrence)	11 to 20 ('y' pts per occurrence)	More than 20 ('z' pts flat rate)	CTROM limits 20 occurrences
CT2g	Service Availability	PGW Availability (Critical Errors)	The number of occurrences that the PGW downtime, related to Critical Mode, in a PGW exceeds the time specified in Volume 2 Book 4a during a month.	Commencement of Operations Services	Zero occurrences	1 to 10 ('x' pts per occurrence)	11 to 20 ('y' pts per occurrence)	More than 20 ('z' pts flat rate)	CTROM limits 20 occurrences
CT20	Quality Control	Route Patrol Personnel Qualifications	This KPI Measures the number of people not suitable qualified to perform the duties of Route Patrol Officers. The minimum qualification requirements are dictated in Volume 2 Book 2a, under Clause 19.4.1.6 of the contract	Commencement of Operations Services	All Officers suitable qualified and certified	2 to 4 ('x' pts per occurrence)	4 to 6 ('y' pts per occurrence)	6 to 10 ('z' pts per occurrence)	
CT21	Quality Control	Fresh Air Management	The Fresh-air Penalty System ensures that the system is maintained properly, and operational procedures are	Commencement of Operations Services	Zero occurrences	1 to 10 pts ('x' pts per point)	11 to 24 pts ('y' pts per point)	More than 25 pts ('z' pts flat rate)	

			enforced to ensure a healthy working environment. Fresh-Air pump off, or not working for longer than allowable time = 20 pts. Heater element not working = 3 pts per lane. Obstructions in air vents = 5 pts per lane. Additional heater in lane = 5pts per lane.						
--	--	--	---	--	--	--	--	--	--



## **PS4.1 Additional Detail Relating to KPI's**

### **PS4.1.3 2: Availability of SCADA**

Change the heading Description from "2: Availability of SCADA" to "Availability KPI's"

#### **"PS4.1.3.1**

Change the current PS4.1.3.1 Clause to PS4.1.3.1.1

Add Heading PS4.1.3.1 called "2a: Availability of SCADA."

Add the following new subclause:

#### **"PS4.1.3.1.2**

*The Contractor shall define a measuring tool for this KPI and submit to the Employer's Representative before the first Performance Review Committee meeting for approval, unless such measuring tool is already included in the project information document (Volume 4)."*

Add Heading PS4.1.3.2 called "2b: VGS availability"

Add the following new subclause:

#### **"PS4.1.3.2.1**

*This KPI shall be applied if the VGS downtime, related to Critical Error Mode, for the VGS system exceeds the maximum time limit as specified. This KPI shall be applied for every continuous maximum specified period that the VGS remained in critical error mode.*

*The Contractor shall apply to the Employer's Representative for approval for planned VGS downtime due to maintenance which will exceed the above periods.*

*Downtime which will exceed the above periods shall be excluded from the performance measurement if the VGS downtime was pre-approved by the Employer's Representative."*

Add Heading PS4.1.3.3 called "2c: QLS availability."

Add the following new subclause:

#### **"PS4.1.3.3.1**

*This KPI shall be applied if the QLS downtime, related to Critical Error Mode, for the QLS system exceeds the maximum time limit as specified. This KPI shall be applied for every continuous maximum specified period that the QLS remained in critical error mode.*

*The Contractor shall apply to the Employer's Representative for approval for planned QLS downtime due to maintenance which will exceed the above periods.*

*Downtime which will exceed the above periods shall be excluded from the performance measurement if the QLS downtime was pre-approved by the Employer's Representative."*

Add Heading PS4.1.3.4 called "2d: QL1 availability"

Add the following new subclause:

#### **"PS4.1.3.4.1**

*This KPI shall be applied if the QL1 downtime, related to Critical Error Mode, for the QL1 system exceeds the maximum time limit as specified. This KPI shall be applied for every continuous maximum specified period that the QL1 remained in critical error mode.*

*The Contractor shall apply to the Employer's Representative for approval for planned QL1 downtime due to maintenance which will exceed the above periods.*

*Downtime which will exceed the above periods shall be excluded from the performance measurement if the QL1 downtime was pre-approved by the Employer's Representative."*

*Add Heading PS4.1.3.5 called "2e: QL2 availability."*

Add the following new subclause:

**"PS4.1.3.5.1**

*This KPI shall be applied if the QL2 downtime, related to Critical Error Mode, for the QL2 system exceeds the maximum time limit as specified. This KPI shall be applied for every continuous maximum specified period that the QL2 remained in critical error mode.*

*The Contractor shall apply to the Employer's Representative for approval for planned QL2 downtime due to maintenance which will exceed the above periods.*

*Downtime which will exceed the above periods shall be excluded from the performance measurement if the QL2 downtime was pre-approved by the Employer's Representative.*

*Add Heading PS4.1.3.6 called "2f: Back Office availability."*

Add the following new subclause:

**"PS4.1.3.6.1**

*This KPI shall be applied if the BOS downtime, related to Critical Error Mode, for the BOS system exceeds the maximum time limit as specified. This KPI shall be applied for every continuous maximum specified period that the BOS remained in critical error mode.*

*The Contractor shall apply to the Employer's Representative for approval for planned BOS downtime due to maintenance which will exceed the above periods.*

*Downtime which will exceed the above periods shall be excluded from the performance measurement if the BOS downtime was pre-approved by the Employer's Representative.*

*Add Heading PS4.1.3.7 called "2g: PGW availability"*

Add the following new subclause:

**"PS4.1.3.7.1**

*This KPI shall be applied in the event that the PGW downtime, related to Critical Error Mode, for the PGW system exceeds the maximum time limit as specified. This KPI shall be applied for every continuous maximum specified period that the PGW remained in critical error mode.*

*The Contractor shall apply to the Employer's Representative for approval for planned PGW downtime due to maintenance which will exceed the above periods.*

*Downtime which will exceed the above periods shall be excluded from the performance measurement if the PGW downtime was pre-approved by the Employer's Representative"*

**PS4.1.13 5: Uninterrupted Electricity Supply**

This subclause to be deleted (see subclause 6.9.3.1 and subclause 6.9.3.2 of the Standard Specifications for Operations and Maintenance of CTROM Projects: Performance Measurement (Volume 2 Book 6a).

**PS4.1.15 6c: Call Queuing Time**

This subclause to be deleted.

Add the following subclause:

**“PS4.1.16.8**

*Any reports which are measured elsewhere as a separate performance item, such as the Corrosion Report, which has its own penalty associated in section 6, should not be measured again in CT8a and CT8b, to avoid the duplication of penalties.”*

**PS4.1.23 15: QLS Availability**

Add the following new subclause:

**“PS4.1.23.3**

*The Contractor shall define a measuring tool for this KPI and submit to the Employer’s Representative before the first Performance Review Committee meeting for approval, unless such measuring tool is already included in the Project Information Document (Volume 4).”*

Add the following new subclasses:

**“PS4.1.27 20: Route Patrol Personnel Qualifications**

**PS4.1.27.1** *This KPI measures the training of the route patrol personnel as par subclause 19.4 Volume 2 Book 2.*

**PS4.1.27.2** *The Contractor shall provide a monthly report listing of all Route Patrol personnel and indicating the Compliance to the requirements for each personnel. The Contractor to provide copies of Certification for each personnel.”*

**“PS4.1.28 21: Fresh Air Supply – Management System**

**PS4.1.28.1** *This KPI measures the level of maintenance and the level of usage of the Fresh Air Supply system to ensure a healthy operating environment of the Contractor’s staff.*

**PS4.1.28.2**

- a) *Fresh Air Supply pump switch off or not operation for longer than the allowable time equates to twenty (20) points.*
- b) *Each heater element that is not functional, three (3) points to be added.*
- c) *Each obstruction found in the air vent; five (5) points added per obstruction.*
- d) *Stand-alone heaters found in toll booths or lane area; five (5) points added per heater.”*

**PS6 PENALTIES**

**PS6.2 Project Commencement: Handover and Provisions of Documents**

**PS6.2.1.1**

0.15% (point one five percent).

**PS6.2.1.2**

0.15% (point one five percent).

**PS6.3 Operations Period – Financial Management**

**PS6.3.1**

5% (five percent).

**PS6.3.2**

5% (five percent).

**PS6.4 Operations Period – Traffic Management**

**PS6.4.1**

0.5% (point five percent)

**PS6.4.2**

1% (one percent).

**PS6.4.3**

0.5% (point five percent).

**PS6.4.4**

1% (one percent)

**PS6.5 Equipment Functionality**

**PS6.5.1**

0.5% (point five percent).

**PS6.5.2**

0.25% (point two five percent).

**PS6.5.3**

0.1% (point one percent).

**PS6.5.4**

**PS6.5.4.1**

0.5% (point five percent).

**“PS6.5.4.2**

Add clause PS6.5.4.2 with the following wording:

Over and above 6.5.4.1, an additional penalty shall be levied for operation in Manual Mode for a period of more than 1 (one) hour for each event of non-compliance.”

0.5% (point five percent)

**PS6.5.5**

1% (one percent).

**PS6.5.6**

0.5% (point five percent).

**PS6.5.7**

1% (one percent).

**PS6.5.8**

1% (one percent).

**PS6.5.9**

1% (one percent).

**PS6.5.10**

3% (three percent).

All references made in the Clauses 6.5.10.1 to 6.5.10.7 to “Clause 6.8.6” must be deleted and replace with “Clause 6.5.10.”

Add the following subclause:

**“PS6.5.10.8**

Delete this Clause and replace with the following:

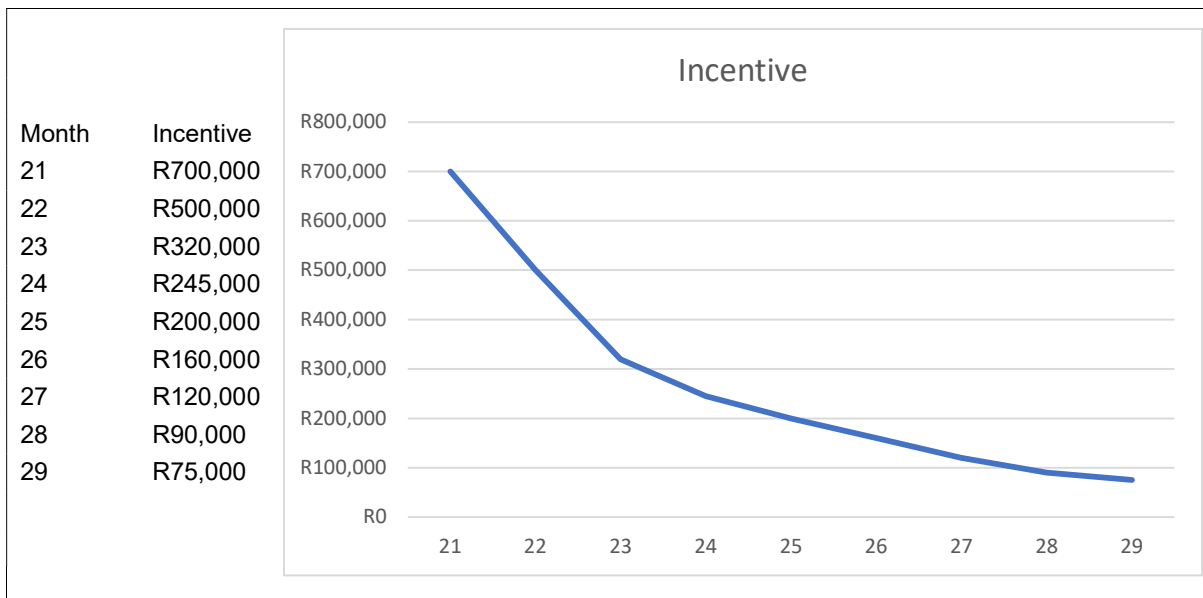
*“In the event that the Contractor fails to achieve full system compliance for the toll system upgrades/replacements by the deadline indicated in the Project Document (Volume 3), the Contractor shall pay a penalty each day in line with the table below, according to the compliance level achieved up to that point, until the Toll System has been certified by the Employer’s Representative as fully compliant to the agreement. The penalty shall be capped at ten percent (10%) of the design build value per control centre at base date value.”*

	No Milestones	Functional Spec	Hardware FAT	Software FAT	Functional Compliance	FC + Rollout	Provisional Compliance	Full System Compliance
<b>* Penalty Value</b>	*R5000	*R5000	*R5000	*R5000	*R4000	*R2500	*R1000	*R0
<b>% of Full Penalty</b>	100%	100%	100%	100%	80% per item	50% per item	20% per item	0%

**“PS6.5.10.9**

Delete this clause and replace with the following:

*“In the event that the Contractor does achieve full System Compliance on the Toll System, and is certified by the Employers Representative as compliant with the conditions of the agreement, prior to the deadline indicated in the Project Document (Volume 3), the Contractor shall receive an incentive payment for design build completion prior to the deadline date according to the following table, depending on the month of completion.”*



## **PS6.6 Damage to assets**

### **PS6.6.1**

The reference made to “Clause 13.2.5” must be deleted and replaced with “Clause 14.3.5”.

0.15% (zero point one five percent)

## **PS6.7 Asset Management – Asset Management System**

### **PS6.7.1**

The reference made to “Clause 14.4” must be deleted and replaced with “Clause 14.5”.

#### **PS6.7.1.1**

0.15% (zero point one five percent)

#### **PS6.7.1.2**

0.15% (zero point one five percent)

## **PS6.8 Asset management – Electrical and Mechanical Maintenance**

### **PS6.8.1**

0.25% (zero point two five percent)

### **PS6.8.2**

Replace 6.8.2 with the following:

*“Lighting Mast Luminaires at any Toll Plaza shall be penalised as follows:”*

#### **PS6.8.2.1**

Add clause PS6.8.2.1 with the following wording:

*“In the event that between 10% (ten percent) and 20% (twenty percent) of the lighting mast luminaires are not functional at any Toll Plaza, the Contractor shall pay a penalty for each event of non-compliance.”*

0.25% (zero point two five percent)

#### **PS6.8.2.2**

Add clause PS6.8.2.2 with the following wording:

*“In the event that more than 20% (twenty percent) of the lighting mast luminaires are not functional at any Toll Plaza, the Contractor shall pay a penalty for each event of non-compliance.”*

0.5% (zero point five percent)

### **PS6.8.3**

2,5% (two-point five percent)

### **PS6.8.4**

0,25% (zero point two five percent)

## **PS6.9 General – Utilities, Services and Levies**

### **PS6.9.1**

Add heading for PS6.9.1 – *“Electricity Interruption”*

Replace the description of PS6.9.1 with the following:

*“In the event of Eskom or Municipal reticulation problems, Account Management problems, Diesel Generator or UPS problems, where such problems lead to power interruptions to the Toll Plaza, the Contractor shall pay a penalty. Without prejudice to any other remedy which the Employer may have either in terms of this agreement, or in law, the Employer shall be entitled to call on the Performance Security.”*

0.2% (zero point two percent)

### **PS6.9.2**

Add heading for PS6.9.2 – *“Provision of Services”*

Replace the description of PS6.9.2 with the following:

*“In the event of non-compliance by the Contractor of its obligations pursuant to Clause 15.1 of the Standard Specifications for Operations and Maintenance for CTROM Projects: General – Volume 2 Book 2(a), (excluding for the respect of electricity supply), the Contractor shall pay for each event of non-compliance”*

0.2% (zero point two percent)

### **PS6.9.3**

Add heading for PS6.9.3 – *“Toll Lane Backup Power”*

Replace the description of PS6.9.3 with the following:

*“In the event of an interruption in the UPS or emergency electricity supply to the Toll Lanes and related equipment (which excludes the Toll Plaza UPS and Generator), the Contractor shall pay the following penalty:”*

#### **PS6.9.3.1**

Replace the description of PS6.9.3.1 with the following:”

*“For interruptions where the emergency power to the Toll Lanes and related equipment fails within the last hour of the contractual requirement (already lasted 3 hours, but did not make 4 hours as required).*

0.5% (zero point five percent)

#### **PS6.9.3.2**

Replace the description of PS6.9.3.2 with the following:”

*“For interruptions where the emergency power to the Toll Lanes and related equipment fails before the last hour of the contractual requirement (lasted less than 3 hours).”*

1% (one percent)

## **PS6.10 General Safety and Security**

### **PS6.10.1**

Replace clause PS6.10.1 with the heading *“6.10.1 Penalties on Safety and Security”* and add the following two sub-clauses:

#### **“PS6.10.1.1**

*“In the event that the Contractor does not comply with its obligations specified in Clause 15.4.1 of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), the Contractor shall pay a penalty for each event of non-compliance.”*

0.25% (zero point two five percent)

**“PS6.10.1.2**

*“In the event that the Contractor does not comply with its obligations specified in Clause 15.4.2 of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), the Contractor shall pay a penalty for each event of non-compliance.”*

0.25% (zero point two five percent)

**PS6.10.2**

0.25% (zero point two five percent)

**PS6.11 General – Quality Assurance**

**PS6.11.1**

0.5% (zero point five percent)

Add the following new subclause:

**“PS6.11.2**

*In the event that the Contractor fails to adhere to an instruction from the Employer’s Representative as depicted in Clause 3.3 of the Conditions of Contract, the Contractor shall pay a penalty for each event of non-compliance on a monthly basis until resolved.”*

0.25% (zero point two five percent)

**PS6.13 Toll Road Services – Road Incident Management Systems**

**PS6.13.1**

0.1% (zero point one percent)

**PS6.14 Toll Road Services – Route Patrol Services**

Replace the wording of PS6.14.1.1. with “*The following Penalties shall apply with regards to Route Patrols:*” and add the following two sub-clauses:

**“PS6.14.1.1.1**

*“If the Contractor does not comply to the frequency of Route Service Patrols as specified in the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) then the Contractor shall pay a penalty for each day of non-compliance.”*

0.5% (zero point five percent)

**“PS6.14.1.1.2**

*“If the Contractor does not comply to the number of Patrol Vehicles as specified in the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a) then the Contractor shall pay a penalty for each day of non-compliance.”*

0.25% (zero point two five percent)

**PS6.14.1.2**

Replace PS6.14.1.2 with the following:



*“If the Contractor does not comply with activities listed in Clause 19.4 of the Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), then the Contractor shall pay a penalty for each activity that have not been performed continuously.”*

0.1% per activity (zero point one percent)

**PS6.14.1.3**

1.0% (one percent)

Replace the wording of PS6.14.1.4 with *“The following penalties shall apply with regards to the minimum required equipment for Route Patrols”* and add the following two sub-clauses:

**“PS6.14.1.4.1**

*“If the Contractor does not comply with the minimum required vehicle fittings in Clause 19.4 of the Standard Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), then the Contractor shall pay a penalty for each day of non-compliance.”*

0.33% (zero point three percent)

**“PS6.14.1.4.2**

*“If the Contractor does not comply with the minimum required personnel equipment in Clause 19.4 of the Standard Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), then the Contractor shall pay a penalty for each day of non-compliance.”*

0.33% (zero point three percent)

**“PS6.14.1.4.3**

*“If the Contractor does not comply with the minimum required vehicle equipment in Clause 19.4 of the Standard Specification for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a), then the Contractor shall pay a penalty for each day of non-compliance.”*

0.33% (zero point three percent)

**PS6.15.1**

0.15% (zero point one five percent)

**C3.2.7 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATIONS FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: PAYMENT METHODOLOGY AND DESCRIPTION OF PAYMENT ITEMS (VOLUME 2 BOOK 7A)**

The number of each Clause as a Particular Specification in this section consists of the Prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specifications for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (Volume 2 Book 7a). The number of any new Clause which does not form part of any Clause in the Standard Specifications for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (Volume 2 Book 7a), and which is included herein, is also prefixed by PS followed by a new number. Such new numbers follow on the last Clause used in the relevant section of the Standard Specifications for Operations and Maintenance of CTROM Projects: Payment Methodology and Description of Payment Items (Volume 2 Book 7a).

**PART A – PAYMENT METHODOLOGY**

**PS3.4 Toll System payment items linked to Milestone Testing**

Delete the “*Table 1.1 milestone dependant items before lane expansion/reversible lane creation*” and replace with the following table:

**MILESTONE DEPENDANT ITEMS BEFORE LANE EXPANSION / REVERSIBLE LANE CREATION**

Payment Item	Milestone Description vs Toll System Component	Functional Specification	Hardware Verification	Combined Software Factory Acceptance Test (SFAT)	Functional Compliance (FC)	ETC Functionality	Provisional Compliance (PC)	System Compliance
B-2001	Provision of Toll System Software and Hardware: Back-Office System.	10%	20%	15%	15%	10%	15%	15 % of the total of the Payment Items
B-2002	Provision of Toll System Software and Hardware: Video Grabbing System (VGS)	10%	20%	15%	15%	10%	15%	
B-2003	Provision of Toll System Software and Hardware: Queue Length Monitoring System (QLS)	10%	20%	15%	15%	10%	15%	
B-2004	Provision of Toll System Software and Hardware: Data Concentrator System (DCS)	10%	20%	15%	15%	10%	15%	
B-2005	Provision of Toll System Software and Hardware: Provision of Back Office Servers storage hardware and archive system complete	10%	20%	15%	15%	10%	15%	
B-2006	Additional software and licences complete	10%	20%	15%	15%	10%	15%	
B-2008	LAN and Network Connections. Provision and installation of network to all workstations, printers, etc.	10%	20%	15%	15%	10%	15%	
B-2011	Provisions for Toll System Software and Hardware: Interface with TCH.	10%	20%	15%	15%	10%	15%	
B-3001	Provision of Toll System Software and Hardware: AVC System for Mixed Manual/ETC Lanes and/or Dedicated ETC Lanes.	10%	20%	15%	15%	10%	15%	
B-3002	Provision of Toll System Software and Hardware: Mixed Manual /ETC Lanes for single direction Lanes	10%	20%	15%	15%	10%	15%	
B-3003	Provision of Toll System Software and Hardware: Dedicated ETC Lanes	10%	20%	15%	15%	10%	15%	
B-3006	Provision of Toll System Software and Hardware: Implementation of Queue Length Cameras.	10%	20%	15%	15%	10%	15%	
B-3007	Provision of Toll System Software and Hardware: Implementation of VGS	10%	20%	15%	15%	10%	15%	
B-3008	Provision of all other Documentation as per PS 3.6	10%	20%	15%	15%	10%	15%	

## **PS4.5 Provision in Opex for Income Cost**

### **PS4.5.4**

The historic values of Run-through Violations, Exempt User passages, Local User Discounts, Frequent User Discounts and No-Payment transactions for the existing Toll Plazas on the N17 Toll Road are provided in Part C20 of Volume 4.

## **PS4.6 Adjustment of Contractor Payments as a Result of Zero Traffic Conditions**

### **PS4.6.3**

80% (eighty percent)

## **PS5 ADJUSTMENT OF CONTRACTOR'S MONTHLY PAYMENT TO PROVIDE FOR TOLL INCOME LOSS RESULTING FROM TRAFFIC VOLUMES LOSS**

### **PS5.3.5 Data Sources**

The TEL Services Provider needs to comply with the specifications, as set out in TMH 3 – Traffic Monitoring Services and TMH 14 – Traffic Data Format, included in Part C18 and Part C22 of Volume 4.

The Service Provider's Site Investigation Reports and Certification Certificates will be made available to the Contractor on request.

### **PS5.3.6**

Historic data from AVC, MIS, TEL1 and TEL2 are included in Part C16 of–Volume 4.

## **PART B – SECTION 1: PREAMBLE TO THE SCHEDULE OF PAYMENTS**

### **PS1.9 Contract Price Adjustment**

#### **PS1.9.8**

This Clause to be modified to read as follows:

*“Consumer Price Index for all expenditure groups: Table B for Urban Areas (Base Dec 2021 = 100) as published ...”*

## **PART B – SECTION 2: DESCRIPTION OF PAYMENT ITEMS – A SERIES: OPERATION SERVICE**

### **A-1000 GENERAL CONTRACTOR’S OBLIGATIONS**

Replace Item No **A-1001** with the following:

<b>Item No</b>	<b>Description</b>	<b>Unit</b>
A-1001	Contractor’s General Obligations for the Duration of the Operations Service Period	
A-1001-a	Contractors General Obligations for the duration of the Operations Service Period – Establishment Period	Week
A-1001-b	Contractors General Obligations for the duration of the Operations Service Period - Section 1 (Using the Toll System handed over)	Month
A-1001-c	Contractors General Obligations for the duration of the Operations Service Period - Section 2 & 3 (Using the upgraded Toll System)	Month
A-1001-d	Contractors General Obligations for the duration of the Operations Service Period - Section 4 (Using the SANRAL MIS)	Month
A-1001-e	Contractors General Obligations for the duration of the Operations Service Period - Section 5 (Using the national SANRAL Toll System)	Month

This item is to make provision for all the Contractors’ General Obligations in accordance with clause 10.1 of FIDIC Conditions of Contract for Design, Build and Operate Projects. (2008) (Volume 1 Book 1).

The tendered rate shall include full compensation to the Contractor to meet and to maintain all the General Obligations, in accordance with clause 10.1 of FIDIC General Conditions of Contract for the Design, Build and Operate Project (Volume 1 Book 1) (2008), must also include compensation for all Head Office cost not covered in the payment items listed in the Schedule of Payments (Cost Matrix). The Tendered Rate shall also include for the Contractor’s profit not built into the individual payment items.

The unit of measurement shall be a month of the Operation Service Period during which the Contractor actually provided Head Office overheads required for the execution of the Contract. The Payment will be made to the Contractor for a month of the Operation Service Period during which it provided the Head Office overheads described above.

Costing needs to be made separately for each section of the contract, as defined in Part C1.2.2 Part A: Particular Conditions: Contract Data.

Replace Item No **A-1013** with the following:

<b>Item No</b>	<b>Description</b>	<b>Unit</b>
A-1013	Escrow for commissioning System application software (not toll system related)	Month

In terms of this item, the Contractor shall comply with the requirements related to the provision of an Escrow agreement and the compliance to the requirements of the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a).

The tendered rate shall include for compliance to the deposition of all non-Toll System related software in Escrow and for the ongoing maintenance of the Escrow agreement as well as for the frequent depositing and

verification of software to comply with the requirements to deposit the software in Escrow annually or with the implementation of any new software. (Note that the deposition of software related to the commissioned Toll System forms part of the scope of work of the Nominated Subcontractor and is addressed in the Nominated Subcontractor's contract.)

The tendered rate shall include for full compensation for the provision of an approved and agreed Escrow agreement and the delivery of the complete software into Escrow. This tendered rate for under the above item shall include for full compensation for the actions required to conclude an approved and agreed Escrow agreement and the initial deposition of all software, including testing and verification activities.

The unit of measurement shall be month for the provision of Escrow and ongoing and annual Escrow requirements.

Payment shall be made to the Contractor on a monthly basis based on the tendered rate on the Schedule of Payments/Cost Matrix for the duration of the Operation Service Period.

Add the following new Payment Items:

Item No	Description	Unit
A-1014	Updating Integrated Transport Information System (ITIS) Modules	Month

In terms of this Item, the Contractor is to price for updating the various Integrated / Transport Information System (ITIS) modules described in Clause C3.1.8 of the Project Document (Volume 3).

The tendered rate shall represent full compensation for the Contractor to provide person(s) to gather the relevant information and data in order to update the Employer various ITIS modules.

The unit of measurement shall be a month of the Operation Service period during which the Contractor has updated the Employer various ITIS modules.

The payment will be made to the Contractor for a month of the Operation Service period during which the Contractor has updated the Employer various ITIS Modules.

Item No	Description	Unit
A-1015	Liaison with Service Providers	Month

In terms of this item, the Contractor is to price for all planning, management, liaison and interaction activities with the Service Provider for the Contract for the upgrade and refurbishment for minor repairs at the Toll Plaza Buildings and Canopies on the N17 Toll Road as listed in the table of Clause C3.1.5 of the Project Document (Volume 3).

The tendered rate shall include for all costs incurred by the Contractor including personnel and transport costs to liaise and to interact with the Service Provider during the Contract for the Upgrade and Refurbishment of Toll Plaza Canopies and repairs at all Toll Plaza buildings.

The unit of measurement shall be a month (pro rata for part of the month) of the Operations Service Period during which the Contractor fulfils the liaison and interaction functions with the Service Provider(s).

The Payment will be made to the Contractor for a month (pro rata for part of the month) of the Operation Service period during which the Contractor has fulfilled the liaison and interaction functions with the Service Provider(s).

Item No	Description	Unit
A-1016	Mentoring Targeted Enterprise (New Entrant-Developing Operator)	
A-1016a	Identify and train Targeted Enterprise (New Entrant-Developing Operator)	Month
A-1016b	Oversee of Targeted Enterprise (New Entrant-Developing Operator) management of Toll Plaza	Month

In terms of Item A-1016a, the Contractor is to price for identifying, establishing and implementing monitoring and training program, to develop a Targeted Enterprise (TE) (New Entrant-Developing Operator) to be able to Operate and Maintain a Toll Plaza on their own.

The tendered rate shall include all the costs incurred by the Contractor to:

- Identify and select a suitable Targeted Enterprise (TE) (New Entrant-Developing Operator).
- To develop and implement a mentoring and training program of all the Operations and Maintenance Levels/Sections of the Toll Plaza, such as but not limited to toll plaza operations, maintenance of Toll Plaza facilities, development of Operations and Maintenance Procedures/Manual, Management of Resources and Labour, Contract Management, Financial Management, Risk Management, Environmental Management, Health and Safety, Procurement Management (including tendering) and any other areas required to ensure the TE (New Entrant-Developing Operator) is ready for the Operation and Maintenance of a Toll Plaza.

The unit of measurement shall be a month (or pro-rata for part of the month) from when the Contractor implements the duties and the activities indicated in the approved program.

Payment will be made for the month (or pro rata for part of the month) for which the Contractor has provided services, executed tasks and/or achieved milestones indicated in the approved program.

In terms of Item A-1016b, the Contractor is to manage and supervise the TE (New Entrant-Developing Operator) management of all aspects of operations and maintenance of one (1) Toll Plaza identified by the Contractor and approved by the Employer on the N17 Toll Road.

The tendered rate shall include for all the costs incurred by the Contractor to manage and supervise the TE (New Entrant-Developing Operator), including the management of perceived additional risks incurred during the period where the TE (New Entrant-Developing Operator) operates and maintains the selected toll plaza on their own.

The unit of measurement shall be a month (or pro rata of the month) from when the Contractor's provides the Supervision and Management Services.

The payment will be made to the Contractor for a month (or pro rata for part of the month) for which the Contractor provide this management and supervision services.

Item No	Description	Unit
A-1017	Extra over costs for the supervision of the Nominated Subcontractor	Month

In terms of this payment item, the Contractor shall price for the Supervision of the Nominated Subcontractor responsible for the design, build, operation and maintenance of the toll system.

The tendered rate shall represent full compensation to the Contractor for the Supervision of the Nominated Subcontractor. This tendered rate shall include for, but not be limited to, additional staff to manage and supervise the Nominated Subcontractor responsibilities and Contractor Risks in terms of the Project Document (Volume 3) or any other perceived costs due to the Supervision of the Nominated Subcontractor for the duration of the Contract period.

The unit of measurement for items A-1017, shall be a month of the Contract period during which the Contractor complied with requirements for the Supervision of the Nominated Subcontractor. The payment will be done to the Contractor for a month or pro-rata month of the Contract Period that Contractor supervised and managed the Nominated Subcontractor.

The rate is over and above the overhead charges in A-10012 and B-6014.

## A-2000 PROVISION OF STAFF AND LABOUR

Delete payment Item **A-2011** and replace with the following new payment items:

Item No	Description	Unit
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A-2011	Extra Over or Saving of Operation Cost if Dedicated ETC / Card Lanes are implemented	
A-2011a	Extra over or saving of Operational costs if additional dedicated ETC lanes are implemented (1 lane/direction) (If triggered)	Month
A-2011b	Extra over or saving of Operational costs if additional dedicated ETC lanes are implemented (2 lanes/direction) (If triggered)	Month
A-2011c	Extra over or saving of Operational costs if additional dedicated ETC lanes are implemented (3 lanes/direction) (If triggered)	Month
A-2011d	Extra over or saving of Operational costs if dedicated Card lanes are implemented (If triggered) (1 lane/direction)	Month

In terms of this item the Contractor shall price for any additional costs or cost savings that the Contractor may incur should the Employer “trigger” the operation of the Dedicated ETC or Card lanes at the plaza. The Dedicated ETC or Card lanes can be “triggered” in phases and should be priced accordingly.

The tendered rate is to include for all additional costs or cost savings that the Contractor may incur should the Employer “trigger” the operation of Dedicated ETC lanes at the plaza and priced accordingly. If the Contractor incur additional costs to operate and manage the Dedicated ETC lane, such as, runners in the lanes, back-office transaction verification, formulating and sending transaction files to the National TCH from the plaza, then the Contractor must price as additional costs in Schedule of Payments/Cost Matrix. Should the Contractor find that a saving is possible, i.e. require less toll collectors, the implemented back-office system is automated, etc, should the Employer “trigger” the operation of a Dedicated ETC lane, then the Contractor prices a negative value reflecting the saving amount in the Schedule of Payments/Cost Matrix.

Two (2) Dedicated Card lanes at Gosforth and 2 Dedicated Card lanes at Dalpark Toll Plazas needs to be operated from the start of the Operations Service Period. Similarly, four (4) Dedicated ETC lanes at Gosforth and two (2) Dedicated ETC lanes at Dalpark Toll Plazas needs to be operated from the start of the Operations Service Period. The additional costs or cost savings for these lanes should not be included in this payment item, this payment item only deals with lanes that might be triggered and converted after the start of the Operations Service Period.

The payment to the Contractor will be done monthly based on the monthly tendered rate in the Schedule of Payments/Cost Matrix.

Delete payment **A2015** and replace with the following new payment item A2015:

Item No	Description	Unit
A-2015	Call handling function: In-house handling of calls from the public during Operation Period (if triggered)	
A-2015a	One call handler	Month
A-2015b	Two call handlers	Month
A-2015c	Three call handlers	Month

After this payment item has been triggered, payment of only the relevant sub item will take place each month. The unit of measurement shall be monthly per call handler(s) of incoming calls from the public in respect of Electronic Toll Collection (ETC) transactions and road-related incidents or reports. In the case of ETC transaction, calls will include applications for certain project specific discounts such as a possible ETC linked local user discount system and possible discounts for certain public transport vehicles groups such as taxis as well as queries about Exempt Vehicle status that may require using toll tag. The Contractor will also be required to receive and answer calls from the public regarding road-related incidents or reports or road conditions which he/she, in turn, needs to forward to the relevant Government agencies or departments.

The tendered rate shall represent full compensation to the Contractor for the operation of the Customer Service Call centre for the duration of the contract including but not limited to the provision of the required number of suitable skilled staff, as required, the performance of the Customer Call Centre activities and adherence to call centre manning hours as specified in Clause 19 of the Standard Specifications for Operations and Maintenance for CTROM Projects: General – (Volume 2 Book 2a) and other related Clauses and requirements specified in the contract document.

The tendered rate shall include for full compensation for all human and other resources, processes and activities to ensure that each call received from the public is handled professionally and courteously.



Add the following payment items:

Item No	Description	Unit
A-2017	Quality Control Officer	Month

In terms of this item, the Contractor is to appoint a Quality Control Officer to perform, on behalf of the Contractor, the required checks, inspections and measurement against requirements, after the installation of the Toll System (or components of the Toll System), or after the installation of new, or upgrade of any existing Employer's Facilities or Permanent design-build assets, to confirm quality of installations and to safeguard the Contractor against any of the key performance indicators or penalties as described in Volume 2 Book 6a.

The Contractor shall comply with all employment requirements for labour as specified in Clause 6 of the FIDIC General Conditions of Contract for Design, Build and Operate Projects – Volume 1 Book 1 (2008) and with the requirements specified in Clause 3.4 of the Project Document (Volume 3).

The tendered rate shall represent full compensation to the Contractor to comply with all employment requirements for that are specified in Clause 6 of the FIDIC General Conditions of Contract for Design, Build and Operate Projects – Volume 1 Book 1 (2008) and with requirements specified in Clause C3.4 of the Project Document (Volume 3) for the duration of the Contract. The tendered rate shall include for all the costs incurred by the Contractor for the employment of above position to execute all obligations specified in the Contract. It shall also include for all the cost related to leave, annual bonus, UIF, overtime/relief support, incentives, Provident Fund, skills levy, COID and any other company costs for this category of staff (as applicable).

The unit of measurement shall be a month of the Operation Service Period.

Item No	Description	Unit
A-2022	SHEQ Officer	Month

The Contractor shall comply with all employment requirements for labour as specified in Clause 6 of the FIDIC General Conditions of Contract for Design, Build and Operate Projects – Volume 1 Book 1 (2008) and with the requirements specified in Clause 3.4 of the Project Document (Volume 3).

The tendered rate shall represent full compensation to the Contractor to comply with all employment requirements for that are specified in Clause 6 of the FIDIC General Conditions of Contract for Design, Build and Operate Projects – Volume 1 Book 1 (2008) and with requirements specified in Clause C3.4 of the Project Document (Volume 3) for the duration of the Contract. The tendered rate shall include for all the costs incurred by the Contractor for the employment of above position to execute all obligations specified in the Contract. It shall also include for all the cost related to leave, annual bonus, UIF, overtime/relief support, incentives, Provident Fund, skills levy, COID and any other company costs for this category of staff (as applicable).

The unit of measurement shall be a month of the Operation Service Period.

Item No	Description	Unit
A-2023	VGS Clerk	Month

In terms of this item, the Contractor shall comply with all employment requirements for VGS Clerk as specified in Clause 6 of the FIDIC General Conditions of Contract for Design, Build and Operate Projects – Volume 1 Book 1 (2008) and with the requirements specified in Clause C3.4 of the Project Document (Volume 3).

The VGS Clerk shall perform the following monthly audit functions and generate audit reports;

- 1) Count accuracy verification (AVC count accuracy report per Control centre),
- 2) Technical violation assessment/audits, e.g. "Green light", "Red light", reverse entry, rollback and vehicle standing assessment,
- 3) Audit of VLN discrepancies for exempt, local and frequent users,
- 4) Run through and tailgater investigation,
- 5) Lane incidents and Customer complaints

The tendered rate shall represent full compensation to the Contractor to comply with all employment requirements for VGS Clerk that are specified in Clause 6 of the FIDIC General Conditions of Contract for Design, Build and Operate Projects – Volume 1 Book 1 (2008) and with requirements specified in Clause C3.4 of the Project Document (Volume 3) for the duration of the Contract. The tendered rate shall include for all the costs incurred by the Contractor for the employment of Shift Supervisors to execute all obligations specified in the Contract. It shall also include for all the cost related to leave, annual bonus, UIF, overtime/relief support, incentives, Provident Fund, skills levy, COID and any other company costs for this category of staff.

The unit of measurement shall be a month of the Operation Service Period.

**A-3000 FINANCIAL FEES AND RISK**

Add the following new payment item:

Item No	Description	Unit
A-3009	Risk of Loss or Damage of Tags	per 100 tags per month

It is required that the Contractor shall take the full risk for all losses that may be incurred as a result of either the loss or damage of any Tag(s) in the possession of the Contractor. For this purpose, the risk of losses related to both the initial purchase price of a Tag and the value of trips actually undertaken by means of a lost, stolen or damaged Tag has to be covered by this payment item. It should, therefore, be noted that, if the encoded value on a lost, stolen or damaged Tag is not used, the Contractor will not be responsible for the risk. The current purchase price of a Tag is provided in the Project Document Volume 3. The price of the risk of the loss or damage of Tags will be measured per 100 tags per month.

**A-4000 UTILITIES, SERVICES AND LEVIES**

The following payment Item shall be modified to read as follows:

Item No	Description	Unit
A-4001	Cost for the supply of electricity (Provisional Amounts)	Month

The last paragraph shall be modified to read as follow:

“The payment to the Contractor will be made monthly based on actual invoices from the Service Provider for the duration of the Operation Service Period”.

The following payment Item shall be modified to read as follows:

Item No	Description	Unit
A-4002	Cost for the supply of Fuel (Provisional Amounts)	Month

The last paragraph shall be modified to read as follow:

The payment will be made to the Contractor monthly based on actual invoices from the Service Provider for the duration of the Operation Service Period”.

**A-5000 MAINTENANCE OF PROJECT ASSETS**

**A-5100 FACILITY MAINTENANCE**

Add the following new payment items:

Item No.	Description	Unit
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A-5105	Dedicated ETC lane signs	
A-5105a	Maintenance of Dedicated ETC lane signs	Month
A-5105b	Replacement of Dedicated ETC lane signs	No.

In terms of Item A-5105a, the Contractor is to price for all the requirements to maintain the Dedicated ETC lane signs for the duration of the Operation Service Period.

The tendered rate shall include for all cost incurred by the Contractor to maintain the Dedicated ETC lane signs. These costs include, but not limited to, labour, transport, materials and any other costs incurred by the Contractor in order to maintain these signs to a good presentable standard.

The unit of measurement shall be a month (or pro rata for part of the month) for the maintenance of the signs for the Dedicated ETC lanes for the duration of the Operation Service Period.

The payment will be made monthly (or pro rata for part of the month) for the period for which the Contractor has provided for the maintenance of the Dedicated ETC lanes signs.

In terms of Item A-5105b, the Contractor is required to price for the replacement of new Dedicated ETC lane signs, when instructed by the Employer's Representative or the Employer.

The tendered rate shall include for all the costs incurred by the Contractor to replace the old Dedicated ETC lanes signs with the new signs. These costs include for but not limited to, procurement of new signs, transport, installation (including labour) of the new Dedicated ETC lanes and for the removal and disposal of the old, damaged signs to an accredited site, and any other costs related to the replacement of the new Dedicated ETC lane signs incurred by the Contractor.

The unit measurement shall be the number of each Dedicated ETC lane sign that is replaced.

The payment will be made after the new Dedicated ETC lane sign is installed successfully in terms of the Employer's Representative satisfaction and the old, damaged sign has been disposed of into an accredited site.

Item No.	Description	Unit
A-5106	Median Barriers	
A-5106a	Maintenance of Median Barriers	Month
A-5106b	Replacement of Median Barriers	Metres

In terms of Item A-5106a, the Contractor is to price for requirements to maintain the installed Median Barriers for the duration of the Operation Service Period.

The tendered rate shall include for all costs incurred by the Contractor to maintain the existing median barriers. These costs include but no limited to labour, transport, materials and any other costs incurred by the Contractor in order to maintain the median barriers to a good presentable standard.

The unit of measurement shall be a month (or pro rata for part of a month) for the maintenance of the median barriers for the duration of the Operation Service Period.

Payment will be made monthly (or pro rata part of the month) for the period for which the Contractor has provided the maintenance of the median barriers.

In terms of Item A5106b, the Contractor is required to price for the new installation of median barriers, when instructed by the Employer's Representative or by the Employer.

The tendered rate shall include for all the costs incurred by the Contractor to replace the old damaged median barriers with new median barriers. These costs include but not limited to, the procurement of the new median barriers, transport, installation (including labour) for the new median barriers and for the disposal of the old damaged median barriers to an accredited site and any other costs related to the replacement of new median barriers incurred by the Contractor.

The unit of measurement shall be metre of new median barrier that is installed.

Payment will be made after the new median barriers are installed successfully to the Employer's Representative satisfaction and the old barriers have been disposed of into an accredited site, if required.

Item No.	Description	Unit
A-5107	Impact Attenuators	Month

In terms of Item A-5107, the Contractor is to price for all the requirements to maintain and repair the existing Impact Attenuators for the duration of the Operation Service Period.

The tendered rate shall include for all cost incurred by the Contractor to maintain and repair the existing Impact Attenuators. These costs include, but are not limited to, labour, transport, materials and any other costs incurred by the Contractor in order to maintain these Impact Attenuators to the service provider's standards.

The unit of measurement shall be a month (or pro rata for part of the month) for the maintenance and repairs of the existing Impact Attenuators for the duration of the Operation Service Period.

The payment will be made monthly (or pro rata for part of the month) for the period for which the Contractor has provided for the maintenance and repairs of the existing Impact Attenuators.

Item No.	Description	Unit
A-5108	Provision for New Impact Attenuator System (if triggered)	Lump Sum

The tendered rate under this item, is for the provision of a New Impact Attenuator System in terms of the specifications in the Project Document (Volume 3).

The tendered rate shall include for full compensation for the supply and installation of the New Impact Attenuator System. The tendered rate shall also compensate for the provision of traffic accommodation during the installation of this Impact Attenuator System. The tendered rate shall also include for all the cost related to the removal and the disposing of the existing drum impact attenuator system to suitable accredited dumping site.

Payment will be made to the Contractor once the New Impact Attenuator is successfully installed in all the lanes to the approval of the Employer's Representative and once the Contractor provided a compliance certificate from an accredited disposing site for the disposing of the drum impact attenuator system.

Item No.	Description	Unit
A-5109	Rental of Containers as temporary storage space for Toll System spares, other equipment, and documents.	Month

In terms of this payment item, the Contractor is required to price for the rental of two (2) containers (approx. 6m x 2.5m x 3m) at both Dalpark and Gosforth Plazas to be used for the storage of Toll System spares and documents, until provision is made for a more permanent solution.

The tendered rate shall include for all the costs incurred by the Contractor to rent the containers. These costs include, but are not limited to, the rental, delivery and levelling of the containers, the return of the containers when other storage is available and to any other costs related to the containers incurred by the Contractor shall be a month (or pro rata for part of a month) for the rental of the containers until more permanent storage space is available.

Payment will be made monthly (or pro rata part of the month) for the period for which the Contractor has rented the containers.

### **A-5200 ELECTRICAL & MECHANICAL (E&M) AND HANDYMAN MAINTENANCE**

Add the following new payment item:

Item No.	Description	Unit
A-5208	Provision for E+M Specialist for maintenance of the SCADA system	Month

In terms of this item, the Contractor shall comply with the requirements related to SCADA system maintenance as specified in Volume 2 Book 2a Standard Specifications for Operations and Maintenance of CTROM Projects: General.

The management of the Employers Equipment after Defects Liability Period has lapsed, shall be performed by the Contractor. The tendered rate shall include for all costs, overhead charges and profits to manage and administer the specialist maintenance services during this period in accordance with Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a). The management shall include, amongst others, frequent inspections, checks, and notifications to the supplier of the Employers Equipment at the various facilities.

Under sub-item A-5208, the rate tendered shall include software, licenses, preventative and corrective maintenance by an accredited SCADA designer/installer including a monthly report on the equipment status. All data and reports shall be available on the SCADA system and confirmed by the Contractor on a monthly basis.

The unit of measurement shall be month for the provision of SCADA system maintenance. Payment will be made to the Contractor on a monthly basis based on the tendered rate in the Schedule of Payments/ Cost Matrix for the duration of the Operation Service Period but commencing only after successful commissioning of the SCADA system.

Item No.	Description	Unit
A-5209	Provision for E+M Specialist for maintenance of EPMS 1st, 2nd and 3rd line support and maintenance by a certified installer.	Month

In terms of this item, the Contractor shall comply with the requirements related to Energy and Power Management System (EPMS) system maintenance as specified in Volume 2 Book 2a Standard Specifications for Operations and Maintenance of CTROM Projects: General.

The management of the Employers Equipment after Defects Liability Period has lapsed, shall be performed by the Contractor. The tendered rate shall include for all costs, overhead charges and profits to manage and administer the specialist maintenance services during this period in accordance with Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a). The management shall include, amongst others, frequent inspections, checks, and notifications to the supplier of the Employers Equipment at the various facilities.

The unit of measurement shall be month for the provision of EPMS system maintenance. Payment will be made to the Contractor on a monthly basis based on the tendered rate in the Schedule of Payments/ Cost Matrix for the duration of the Operation Service Period but commencing only after successful commissioning of the EPMS system.

**A-5300 TOLL SYSTEM MAINTENANCE**

Delete the following payment items:

- A-5301 Toll System Software Support
- A-5302 Toll System Equipment and Hardware Maintenance
- A-5303 Toll System Maintenance and Support: QLS
- A-5304 Toll System Maintenance and Support: VGS
- A-5305 Toll System Maintenance and support Customer Service workstations & related equipment

The following payment Item to be modified to read as follows:

Item No.	Description	Unit
A-5308	Hand-Back of assets and systems	
A-5308-a	Hand-Back of Toll System	Lump Sum
A-5308-b	Hand-Back of assets and systems other than the Toll System	Lump Sum

The Lump Sum tendered for under the item in A-5308-a is for the Hand-Back of the Toll System in terms of Volume 2 Book 4a Clause 2.8, and Volume 2 Book 2a Standard Specifications for Operations and Maintenance of CTROM Projects: General.

The Lump Sum tendered for under the item in A-5308-b is for the Hand-Back of assets and systems other than the Toll System, in terms of Volume 2 Book 2a Standard Specifications for Operations and Maintenance of CTROM Projects: General.

The Lump Sum tendered shall provide full compensation for the hand-back of the assets after Contract termination to ensure that all the assets and system, including the Toll system, are fully functional, that all outstanding maintenance and support-related actions are complete and that all defects are corrected.

The Lump Sum shall further provide compensation for a full complement of spares, test or standby rigs, tools and updated Equipment Record and Asset Management Systems to be handed over to the Employer to facilitate the on-going maintenance and support of the assets and systems. The Contractor shall ensure that all documentation, drawings, manuals, keys, codes, licences, access credentials and passwords are documented, up to date and packaged for handover to the next operator.

Payment shall be made to the Contractor after the successful hand-back of the assets and systems and hand-over of the spares and tools as approved by the Employer.

### **A-6000 TOLL ROAD SERVICES**

Payment item No A-6001 to be modified to read as follows:

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>
A-6001	Participation in Road Incident Management System (RIMS) Procedures and Structures	Month

In terms of this item, the Contractor shall participate in the Road Incident Management System (RIMS) procedures and structures as implemented on the Toll Road in terms of Clause 19 of the Standard Specifications for Operations and Maintenance: General – Volume 2 Book 2a and all other related Clauses and requirements specified in the Contract.

The tendered rate shall represent full compensation to the Contractor for the participation in the RIMS activities that includes, but is not limited to feedback and input into the RIMS process, attendance of RIMS meetings, training of relevant Contractor’s staff, attending de-briefing sessions for the duration of the Contract in terms of Clause 19 of the Standard Specifications for Operations and Maintenance: General – Volume 2 Book 2a and other related Clauses and requirements specified in the Contract Document.

The Contractor shall price on a monthly basis in the Schedule of Payment/Cost Matrix to participate in the RIMS process to the approval of the Employer’s Representative for the duration of the Contract.

### **A-7000 SAFETY AND SECURITY**

The following payment Item to be modified to read as follows:

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>
A-7003	Support, installation and maintenance of fire suppression system in the sever-, generator- and UPS rooms	Month

The second paragraph to be modified to read as follows:

“The monthly tendered rate under this item in server room(s), UPS Room(s) and generator room of the Control Centre shall include for full compensation for the support and routine maintenance of the system, similar to the fire extinguisher schedule or to the system suppliers’ recommendation and routine or other service maintenance for the duration of the operation service period.

Add the following new Payment Items:

Item No.	Description	Unit
A-7004	Provision of Security Services	
A-7004-a	Provision of Security Services	Month
A-7004-b	One (1) extra armed guard (if triggered)	Shift
A-7004-c	Two (2) extra armed guards (if triggered)	Shift
A-7004-d	Three (3) extra armed guards (if triggered)	Shift
A-7004-e	Four (4) extra armed guards (if triggered)	Shift
A-7004-f	Tactical Response Security (if triggered)	Shift
A-7004-g	Provision of temporary ablution facilities for Enforcement Agencies (if triggered)	Shift

In terms of Item A-7004-a, the Contractor is to price for all the requirements for the provision of security services as described in Clause PS15.4.1.3 of the Project Document (Volume 3) for the duration of the Operation Service Period.

The tendered rate shall include for all the costs incurred by the Contractor to meet all requirements for the provision of Security Services. These costs include but are not limited to the procurement of services, labour, transport, materials, management and any other costs incurred by the Contractor to provide security services.

The unit of measurement is monthly (or pro rata for part of the month) that the Contractor provides the security services.

Payment will be made for the month (or pro rata for part of the month) that the Contractor has provided security services.

In terms of Items A-7004-b to f, the Contractor is required to price for the requirements to provide additional security guards and tactical response security, when instructed by the Employer's Representative or the Employer.

The tendered rate shall include all the costs incurred by the Contractor to provide additional security guards and tactical response security. The costs shall include for all costs such as but not limited to labour, transport, materials, management and any other costs incurred by the Contractor to provide additional security guards and tactical response security.

The unit of measurement shall be 12-hour shift that the Contractor provides additional security guards and tactical response security.

Payment will be made for each 12-hour shift that the Contractor has provided additional security guards and tactical response security.

In terms of Items A-7004-g, the Contractor is required to price for the provision of temporary ablution facilities, when instructed by the Employer's Representative or the Employer.

The tendered rate shall include all the costs incurred by the Contractor to provide temporary ablution facilities. The costs shall include for but not limited to labour, transport, materials, management and any other costs incurred by the Contractor to provide temporary ablution facilities.

The unit of measurement shall be 12-hour shift that the Contractor provides ablution facilities.

Payment will be made for each 12-hour shift that the Contractor has provided temporary ablution facilities.

Item No.	Description	Unit
<b>A-7005</b>	<b>Monitoring of Security Cameras</b>	
A-7005-a	Monitoring security cameras in B-4016 internally or externally. Sim Cards, Data fees, remote monitoring fees, comprehensive insurance included, etc. Minimum of 6 cameras on the basic system.	Month
A-7005-b	Monitoring security cameras in B-4016 internally or externally. Additional monthly cost per single camera added to the monitoring system / control room.	Cameras-Month

In terms of this item, the Contractor shall comply with the requirements related to security camera system monitoring and maintenance as specified in Volume 2 Book 2a Standard Specifications for Operations and Maintenance of CTROM Projects: General.

The rate tendered for under sub-items a to b, shall be for part time monitoring of the security cameras based on the technology used by the Contractor. The security cameras shall be based on analytics or motion detection technology and shall report incidents to the Contractor for verification and proactive action only. The Contractor shall store all incidents and provide a detail report on a monthly basis on all real incidents reported and action taken. The report shall provide data on real and false incidents.

The management of the Employers Equipment after Defects Liability Period has lapsed, shall be performed by the Contractor. The tendered rate shall include for all costs, overhead charges and profits to manage and administer the specialist maintenance services during this period in accordance with Standard Specifications for Operations and Maintenance of CTROM Projects: General (Volume 2 Book 2a). The management shall include, amongst others, frequent inspections, checks, and notifications to the supplier of the Employers Equipment at the various facilities. Battery replacements shall be included in the rate based on Lithium batteries.

The unit of measurement shall be month for the provision of security cameras system monitoring and maintenance. Payment will be made to the Contractor on a monthly basis based on the tendered rate in the Schedule of Payments/ Cost Matrix for the duration of the Operation Service Period but commencing only after successful commissioning of the security camera system.

Payment of sub item a shall be made subject to the submission of the approved and complete monthly incident report. The report shall include statistical data to allow the Employer's Representative to compare data from different months, establish a baseline, etc. Battery replacement scheduled shall be included in the monthly rate. The monthly rate shall consist of all monthly maintenance costs to ensure the Security cameras comply with the contractual requirements and intention to assist with protecting the Employer's assets.

Item No.	Description	Unit
A-7006	Replace razor wire at Ermelo Toll Plaza.	Metres

In terms of this payment item, the Contractor is required to price for the replacement of the razor wire on top of the concrete palisade at the Ermelo Plaza, when instructed by the Employer's Representative or by the Employer.

The tendered rate shall include for all the costs incurred by the Contractor to replace the razor wire. These costs include, but are not limited to, the procurement, transport, installation (including labour) of Flatwrap galvanized ripper-type razor wire (500mm) and for the disposal of the old wire to an accredited site, if required, and any other costs related to the replacement of the razor wire incurred by the Contractor shall be per metre of razor wire that is installed.

Payment will be made after the razor wire is replaced to the Employer's Representative satisfaction and the old wire has been disposed of into an accredited site, if required.

Item No.	Description	Unit
A-7007	High-security, vandal-proof and anti-tamper security fence to secure front of buildings with palisade or Clearview fencing at Leandra, Trichardtsfontein, Ermelo and Dalpark Toll Plazas	Metres

In terms of this payment item, the Contractor is required to price for the installation of palisade or Clearview fencing at the front of the buildings of the Eastern Plazas (i.e. Leandra, Trichardtsfontein and Ermelo Plaza) and Dalpark Toll Plaza in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 subclause 3.2.3., when instructed by the Employer's Representative or by the Employer.

The rate tenders shall be for a new anti-climb, anti-cut, rigid and highly transparent 2400mm x 2500mm high-security, vandal-proof and anti-tamper security fence with high tensile mesh openings of 76mm x 12.7mm, line galvanized as finishing (Standard option). The fence rate shall consist of anti-tamper screws, nuts bolts, posts, concrete, earthing the fence to the plaza earthing system, Wire diameter of 3mm Horizontal and 4mm Vertical.



The tendered rate shall include for all the costs incurred by the Contractor to install the fences. These costs include, but are not limited to, the procurement, transport and installation (including labour) of the fences, and any other costs related to the installation of the palisade or Clearview fencing incurred by the Contractor shall be metre of palisade/Clearview fencing that is installed.

Payment will be made after the fences are installed to the Employer's Representative satisfaction.

Item No.	Description	Unit
A-7008	Heavy duty automatic locks to be installed in the toll booth doors at all N17 Toll Plazas	No

In terms of this payment item, the Contractor is required to price for the replacement of the toll booth door locks with Union type or similar heavy duty automatic locks at all the N17 Plazas, when instructed by the Employer's Representative or by the Employer.

The tendered rate shall include for all the costs incurred by the Contractor to install the toll booth door locks. These costs include, but are not limited to, the procurement, transport and installation (including labour) of the locks, and for the disposal of the old locks, if required, and any other costs related to the replacement of the locks incurred by the Contractor, shall be per lock installed.

Payment will be made after the locks are installed to the Employer's Representative satisfaction and the old locks are disposed.

#### A-10000 PROVISIONAL SUMS

Add the following new Payment Items:

Item No.	Description	Unit
A-10012a	Nominated Subcontract Operational Works and Services (including Provisional Sums and allowances in the Nominated Subcontract)	Prov Sum
A-10012b	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)

The Provisional sum provided under sub-item A-10012a will be used to pay the Nominated Subcontractor operational costs in terms of the Nominated Subcontractor agreement and as approved by the Employer and/or Employer Representative. The Provisional Sum provided under sub item a) will cover the full value of the operational work performed under the Toll System Nominated Subcontract.

The Provisional sum shall be expended in accordance with the provisions of Clause 13.5 [Provisional Sums] of Volume 1, Book 1, the "FIDIC Conditions of contract for Design, Build and Operate Projects."

The percentage tendered under sub-item A-10012b for overhead charges, and profit shall be applied to the actual expenditure in terms of sub-item A-10012a. This percentage shall allow for any costs associated with payment towards the Nominated Subcontractor, and for any provision for profit not yet covered in cost Item No. A-1017.(Extra over costs for the supervision of the Nominated Subcontractor). The Contractor's monthly statement shall detail any deductions applied by the Contractor and costs recovered from the Nominated Subcontractor.

Item No.	Description	Unit
A-10013	Resolution of Flooding of the manholes at Denne Road	
A-10013a	Resolving the continuous flooding of the manholes at Denne Road Plaza	Prov Sum
A-10013b	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)

The Provisional Sum provided under this item will be used by the Contractor, if requested to do so by the Employer, to resolve the continuous flooding of the manholes at Denne Road Plaza. The solution will be based on an investigation done by the Employer, or his Representative, to determine the cause of flooding.

The Provisional Sum provided under this item a) for the solving of the flooding shall be expended in accordance with the provisions of Clause 13.5 [Provisional Sums] of Volume 1 Book 1, the “FIDIC Conditions of Contract for Design, Build and Operate Projects”, which requires that the Contractor shall provide quotations for the work to be performed for approval by the Employer’s Representative.

The percentage tendered under this item b) for overhead charges and profit shall be applied to the actual expenditure in terms of this item a) and shall cover the Contractor’s procurement and management of quotations and the management of execution of the solving of the Employer’s Assets, when requested to do so by the Employer or his Representative.

Item No.	Description	Unit
A-10014	Water Proofing	
A-10014a	Appointment of Water Proofing Experts to perform a detailed inspection of the water proofing issues at the Eastern Plazas.	Prov Sum
A-10014b	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)
A-10014c	Solving the water proofing issues at the Eastern Plazas and repainting of the walls and fixing of the tiles.	Prov Sum
A-10014d	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)

The Provisional Sum provided under this item A-10014a will be used by the Contractor, if requested to do so by the Employer, to appoint Water Proofing Experts to perform a full detailed inspection to determine the cause of the water proofing problems at the Control Buildings of the Eastern Plazas.

The Provisional Sum provided under this item a) for Water Proofing Experts to perform a detailed inspection of the water proofing issues shall be expended in accordance with the provisions of Clause 13.5 [Provisional Sums] of Volume 1 Book 1, the “FIDIC Conditions of Contract for Design, Build and Operate Projects”, which requires that the Contractor shall provide quotations for the work to be performed for approval by the Employer’s Representative.

In terms of item A-10014b, the Provisional Sum provided under this item will be used by the Contractor, if requested to do so by the Employer, to solve the water proofing problems, to repaint the walls (as specified on the drawings) and fix the tiles of the Control buildings of the Eastern Plazas. The solution will be based on the recommendations from the Water Proofing Experts.

The percentage tendered under this item A-10014b and d for overhead charges and profit shall be applied to the actual expenditure in terms of these items a) and c) and shall cover the Contractor’s procurement and management of quotations and the management of the inspection, when requested to do so by the Employer or his Representative.

Item No	Description	Unit
A-10015	Provision for the Refurbishing of Toll Plaza Control Buildings	
A-10015a	Major and general refurbishment of the Gosforth, Dalplark and Denne Road Plaza buildings.	Prov. Sum
A-10015b	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)

The Provisional Sum provided under sub item a) will be used by the Contractor, if requested to do so by the Employer, for the refurbishing of Gosforth, Dalpark and Denne Road plaza buildings.

The Provisional Sum under this item a) to cover the cost of the general refurbishment of the Employer’s Assets shall be expended in accordance with the provisions of Clause 13.5 (Provisional Sums) of Volume 1 Book 1, The “FIDIC Conditions of Contract for Design, Build and Operate Projects”, which requires that the Contractor shall provide quotations for the work to be performed for approval by the Employer’s Representative.

The percentage tendered under sub item b) for the overhead charges and profit shall be applied to the actual expenditure in terms of this item a) and shall cover the Contractor’s procurement management of the execution of additional upgrades of the Employer’s Assets, when requested to do so by the Employer or his Representative.

Item No	Description	Unit
A-10016	Provision for concrete works: Replacement of Toll Booths and concrete slabs at Gosforth and Dalpark and replacement of concrete joint sealant at all the toll plazas	
A-10016a	Replacement of current aluminium toll booths with security type concrete toll booths, replacement of cracked and failed concrete slabs and replacement of concrete joint sealant in the toll lanes and approaches (aprons) as and when instructed by the Employer	Prov. Sum
A-10016b	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)

The Provisional Sum provided under this item will be used by the Contractor, if requested to do so by the Employer, for the replacement of current aluminum toll booths with security type concrete toll booths, replacement of cracked and failed concrete slabs and/or replacement of concrete joint sealant in the toll lanes and approaches (aprons).

The Provisional Sum under this item a) to cover the cost of the general refurbishment of the Employer's Assets shall be expended in accordance with the provisions of Clause 13.5 (Provisional Sums) of Volume 1 Book 1, The "FIDIC Conditions of Contract for Design, Build and Operate Projects", which requires that the Contractor shall provide quotations for the work to be performed for approval by the Employer's Representative.

The percentage tendered under sub item b) for the overhead charges and profit shall be applied to the actual expenditure in terms of this item a) and shall cover the Contractor's procurement management of the execution of additional upgrades of the Employer's Assets, when requested to do so by the Employer or his Representative.

**PART B – SECTION 3: DESCRIPTION OF PAYMENT ITEMS – B SERIES: DESIGN-BUILD**

**B-1000 CONTRACTOR'S ESTABLISHMENT**

Delete the following payment items:

- B-1001-a Contractors General Obligations and Establishment at Contract Commencement date for the Design Build period - fixed obligations for Design Build and Operations
- B-1001-b Contractors General Obligations and Establishment at Contract Commencement date for the Design Build period - Time Related obligations for Design Build and Operations
- B-1002-b Allowance for person- hours for variations - Senior Hardware and/or Software Engineer
- B-1002-c Allowance for person- hours for variations -Junior Hardware and/or Software Engineer
- B-1002-d Allowance for person- hours for variations -Installation and/or Training Manager
- B-1002-e Allowance for person- hours for variations -Installer

**B-2000 TOLL SYSTEM - PLAZA/ CONTROL CENTRE LEVEL: CONVENTIONAL PLAZAS/ HYBRID PLAZA, AND CONVENTIONAL PART OF A**

Delete the following payment items:

- B-2001 Provision of Toll System Software and Hardware: Back Office System (if triggered)
- B-2002 Provision of Toll System Software and Hardware: VGS (if triggered)
- B-2003 Provision of Toll System Software and Hardware: QLS (if triggered)
- B-2004 Provision of Toll System Software and Hardware: DCS (if triggered)
- B-2005 Provision of Toll System Software and Hardware: Archive System (if triggered)
- B-2006-a Additional Software and licences complete not listed in item B-2006-b (if triggered)
- B-2006-b Additional Software and licences for Microsoft Products/ Oracle RDBMS and SAP (if triggered)
- B-2007 Provision of Toll System Software and Hardware: Workstations for Customer Service operations at the Control Centre and/or remote Plazas. (If triggered)
- B-2008 LAN and Network Connections- Provision and Installation of GB/s network for all workstations, printer
- B-2009 Detection System for vehicles of Special Interest (VOSI) (if triggered)
- B-2010 Detection System for vehicles Exceeding the Legal Vehicle Height (if triggered)

Add the following payment items:

Item No	Description	Unit
B-2006c	Additional software and licences complete (not provided by the Nominated Subcontractor)	Lump Sum

The Lump Sum tendered for under this item, is for the provision of additional software and licences not provided by the Nominated Subcontractor, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a) in order for the Contractor to fulfil his obligations under the Contract. The Lump Sum tendered shall include full compensation for the delivery of the complete software supply, installation, commissioning and/or upgrade including any 3<sup>rd</sup> party software, database software, etc and the submission of applicable licences.

The Contractor shall provide a list and detail of additional software implemented. Payment shall be made in accordance and subject to successful delivery, implementation and commissioning by the Contractor and followed by successful testing and approval by the Employers Representative.

Item No	Description	Unit
B-2013	VGS, QLS and ANPR pilot parallel operations (if triggered)	Lump Sum

The Contractor shall implement a VGS, QLS and ANPR pilot at the Gosforth mainline Plaza for testing of enhanced Video Grabbing System (VGS) Software, Queue Length System (QLS) Software, TCC software,

incident control software and server level ANPR software that support automatic VLN verification and VGS audit functionality, and include server hardware, network equipment, cameras and dedicated ANPR cameras in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Toll Systems (Volume 2 Book 4a) and Volume 3 book 1.

The Lump Sum tendered by the Contractor for under item B-2013, is for the additional operational costs related to but not limited to testing, training, operations and other costs to ensure that the operational performance and control is maintained during the deployment and pilot testing and the assessment of the VGS, QLS and ANPR pilot. The Contracts VGS Clerk shall be trained during the Pilot project and perform the prescribed VGS audit work on the Pilot System as part of the Trail operations of the VGS workstation and underlying VGS, QLS and ANPR implementation.

Item No	Description	Unit
B-2014i	Additional operational costs during the SANRAL Toll system pilot deployment and testing (if triggered).	Lump Sum
B-2014j	Additional operational costs during the SANRAL Toll system deployment, replacing another Toll System (if triggered).	Lump Sum

The Employer may decide to deploy the national SANRAL Toll System on the route. The deployment will take part in two phases. A pilot deployment at a selected site will be used to prepare for the roll-out to the rest of the route. The Nominated Subcontractor and the SANRAL Toll System Nominated Subcontractor (3<sup>rd</sup> party) shall be responsible for the deployment, testing, trial parallel operations and trial operations, commissioning and test on completion, of the SANRAL Toll System for the pilot deployment and the roll-out of the SANRAL Toll System on the route.

The Lump Sum tendered under item B-2014i, shall include full compensation for the testing, trial parallel operations and trail operations, commissioning and test on completion, of the Toll System at the Gosforth Toll plaza (or any mainline plaza as agreed and approved by the ER). The Contractor shall provide the additional personnel, management, support and resources during the pilot operations to minimize the impact of the pilot testing on the plaza operations. The Contractor shall during the parallel pilot perform tests, include full Functional Compliance tests, that include the month end process. The Contractor shall produce a Compliance Tests report to verify compliance of the SANRAL Toll System with Employer's requirements and identify any defects and inefficiencies. The Contractor shall, where required, adjust their operational procedures and issue revise documentation to optimize the operational processes, reporting, control and management.

The Lump Sum tendered under item B-2014j, shall include full compensation for the testing, trial operations, commissioning and test on completion, of the Toll System at the remainder of the N17 Toll plazas. The Contractor shall procure and implement the necessary additional processes, software, hardware and equipment to facilitate the change to the SANRAL Toll System, without impacting on the performance and operations. The Contractor shall ensure that personnel and resources is provided during the training, pilot operations to minimize the impact of the pilot testing on the Operator and plaza operations.

Item No	Description	Unit
B-2016e	Additional operational costs during the Pilot testing in conjunction with the SANRAL MIS interface (if triggered).	Lump Sum
B-2016f	Additional operational costs during deployment, configuration, testing and commissioning of the SANRAL MIS interface on the route (if triggered).	Lump Sum

The Nominated Subcontractor shall be responsible for the design, approval of the design, development, testing and documentation of a basic interface to the SANRAL MIS. The basic interface is specified in Part C3 Volume 2 Book4a PS 7.8. The Nominated Subcontractor shall be responsible for monthly maintenance and support of the basic interface to the SANRAL MIS.

The Lump Sum tendered under item B-2016e shall include full compensation for the additional operational costs associated with the deployment, configuration, testing, commissioning of the Basic SANRAL MIS interface on the route.

The Nominated Subcontractor shall be responsible for the design, approval of the design, development, testing and documentation of a full interface to the SANRAL MIS. The Nominated Subcontractor shall perform pilot testing of the SANRAL MIS interface in accordance with a test procedure developed by the Contractor and

approved by the Employer. The Nominated Subcontractor configure, deploy, test, commission the SANRAL MIS interface on the route.

The Lump Sum tendered under item B-2016f shall include full compensation for the additional operational costs associated with the deployment, configuration, testing, commissioning of the Full SANRAL MIS interface on the route.

**B-3000 TOLL SYSTEM – LANE AREA RELATED: CONVENTIONAL PLAZAS AND CONVENTIONAL PART OF CONVENTIONAL / ORT PLAZAS**

Delete the following payment items:

- B-3001 Provision of Toll System Software and Hardware: AVC Systems for mixed/ manual/ ETC lanes and/or Dedicated ETC lanes
- B-3002 Provision of Toll System Software and Hardware: Mixed Manual / ETC lanes for single direction
- B-3003 Provision of Toll System Software and Hardware: Dedicated ETC lanes
- B-3004 Provision of Toll System Software and Hardware: Upgrading of a Mixed ETC -Manual Lane to a Dedicated ETC Lane (If triggered)
- B-3005 Provision of Toll System Software and Hardware: Implementation of reversable toll lanes. (If triggered)
- B-3006 Provision of Toll System Software and Hardware: Implementation of Queue Length Cameras.
- B-3007 Provision of Toll System Software and Hardware: VGS
- B-3008 Provision of Documentation

**B-4000 ELECTRICAL AND MECHANICAL SYSTEMS**

Delete the following payment item:

- B-4002 Electrical: Supply and installation
- B-4001 Uninterruptible Power Supply (UPS) units

“Replace item B-4001 with the following:

Item No	Description	Unit
B-4001	Modular Uninterruptable Power Supply (UPS) units (If triggered items)	
B-4001a	Static 6kVA UPS (If triggered)	No.
B-4001b	20kVA (Frame Capacity 60 kVA, N+1, 2 x modules) (if triggered)	No.
B-4001c	40kVA (Frame Capacity 60 kVA, N+1, 3 x modules) (if triggered)	No.
B-4001-d	60kVA (Frame Capacity 60 kVA, N+1, 4 x modules) (if triggered)	No.
B-4001e	New 12V VRLA maintenance-free lead acid batteries (if triggered)	kWh
B-4001f	UPS delivery to site (if triggered)	Km

The tendered rate under this sub-item B-4001 a to d, is for the provision of a new Uninterruptable Power Supply (UPS) units in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3.

The rate tendered under the above sub-items shall include for full compensation for the supply, installation, factory and on-site testing including commissioning of the new UPS including but not limited to, hardware, software, batteries, cabling, installation, Contractor’s internal testing with test report and earthing. The Contractor shall submit an ECOC for the installation with the commissioning and as-built documentation that will include the factory and onsite testing results.

The rate tendered under item sub-item f shall include full compensation for the supply, installation and testing the new UPS VRLA batteries on site. The Contractor shall claim the battery transport cost under item sub item f.

The rate tendered under item sub-item B-4001 f shall include full compensation for the delivery of the new UPS including batteries or new batteries to site including toll fees, labour, crane truck, diesel fuel and all other cost

to deliver the UPS to site and position the UPS in the correct location as agreed with the Employer's Representative.

Payment shall be made to the Contractor after the Contractor has successfully delivered, installed, tested and commissioned the new UPS and witnessed by the Employers Representative.”

### **B-4003 Air-conditioning and ventilation**

“Replace item B-4003 with the following payment items:

<b>Item No</b>	<b>Description</b>	<b>Unit</b>
<b>B-4003</b>	<b>Booth air-conditioning and fresh air ventilation upgrade (if triggered items)</b>	
B-4003a	New Inverter 9000BTU mid-wall split type air-conditioner	No.
B-4003b	New Inverter 12000BTU mid-wall split type air-conditioner	No.
B-4003c	New Inverter 18000BTU mid-wall split type air-conditioner	No.
B-4003d	New Inverter 24000BTU mid-wall split type air-conditioner	No.
B-4003e	New Inverter VRV 18HP/48000BTU Heat Recovery system (Leandra, Trichardtsfontein & Ermelo Toll Plazas)	No.
B-4003f	Preliminary Design (Gosforth & Dalpark Toll Plazas)	Lump Sum
B-4003g	Detail Design (Gosforth & Dalpark Toll Plazas)	Lump Sum
B-4003h	Tender process as per Employer SCM approved process (Gosforth & Dalpark Toll Plazas)	Lump Sum

The Lump Sum tendered for under the above sub-item B-4003 a & e, is for the provision for new highly efficient inverter type air-conditioners in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3, PS 29.1.

The rate tendered under the above sub-items shall include full compensation for the removal of the old air-conditioning unit the supply, installation, transport, toll fees and on-site testing of the new air-conditioning system. The installation shall include all pipes, cabling, gas, brackets mountings, tidy installation, etc. to complete the installation.

The Lump Sum tendered for under sub-items B-4003 f & g is for the complete fresh air system design for Gosforth and Dalpark Mainline Toll Plazas that shall include the Preliminary Design and Detailed Design. The Preliminary Design shall be a high-level design to ensure all aspects are covered before the Contractor start the Detailed Design. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detailed Design.

The scope of the Preliminary and Detailed design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The Lump Sum tendered for under sub-item B-4003 h is for the complete tender process to obtain market related prices for a new fresh air supply system on the Detailed Design provided under sub item i. The Tender process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of tender. The Employer will issue the tender to the market and will nominate a 3rd party to evaluate the tenders.

The Employer will make payment to the Contractor on the deliverables (Preliminary and Detailed Design) and after the Contractor has successfully obtained relevant market-related tender/bid prices approved by the Employer in accordance with the Employer Supply Chain Management procurement (SCM) process as applicable at the time of tender or quotation”.

“Add the following payment items:

Item No	Description	Unit
B-4004a	Power meter (Normal, Generator, Grid Tie inverter and battery storage)	No.
B-4004b	Energy and Power Management Software (EPMS) and license	No.
B-4004c	Device license (devices that will interface with the EPMS software)	No.
B-4004d	Preliminary Design.	Lump Sum
B-4004e	Detail Design.	Lump Sum

The rate tendered for under sub-item B-4004 a, is for the provision of a new SANS 474 compliant power meter for each Toll Plaza, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3. The meter shall be installed in a new wall mounted enclosure at the location close to the power supply to be measured.

The rate tendered under the above sub-item shall include full compensation for the supply, delivery to site, installation, and site testing, including commissioning the power meter by an accredited system integrator. The meter and software installation shall include but is not limited to hardware, software, device license for the contract period plus twenty-four (24) months, cabling (communication cabling provided under SCADA section), material, equipment, switchgear, fuses VT's and CT's and all other material to complete the installation. If the installation of some systems is outstanding, the accredited system integration shall return at a date agreed to with the Employers Representative to install the due meters as required above.

The rate tendered for under item sub-item B-4004 b is for the provision of energy and power management software in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3. The rate tendered shall include supply, installation, setup and commissioning of the software by a certified installer on the SCADA server, including a Data Exchange Module. In addition, the Contractor shall provide the Employer's Representative with remotes access to the EMPS data and dashboard through the Contractors data network or other approved communication network without any additional communication or service cost. Should the SCADA server not be available the Contractor shall provide an alternative platform to host the data.

Under item sub-item c, the rate tendered shall include the license cost to interface a single device (i.e. meter, UPS, etc.) with the EMPS software.

Under item sub on the hardware and software by a certified installer including a monthly report on the equipment status. All data and reports shall be available on the EPMS software.

The Lump Sum tendered for under sub-item B-4004 d & e is for the complete Preliminary Design and Detailed Design of the energy and management software installation. The Preliminary Design shall be a high-level design to ensure all aspects are covered before the Contractor start the Detailed Design. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detailed Design.

The scope of the Preliminary and Detailed design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

Payment shall be made on the approved deliverables (Preliminary Design and Detail Design) and subject to successful delivery, installation, implementation, testing and commissioning by the Contractor and following successful testing and approval by the Employer's Representative. The Contractor shall also submit an updated asset register to complete the process."

"Add the following payment items:

Item No	Description	Unit
B-4005	New generator and additional generator services due to extended power interruption	
B-4005a	Generator 60kVA prime power for installation in generator room (Denne Road Ramp Toll Plazas)	No.
B-4005b	Generator 60kVA prime power with soundproof and weatherproof enclosure (Leandra Ramp Toll Plazas)	No.



B-4005c	Generator 100kVA prime power with soundproof and weatherproof enclosure. (Gosforth West Ramp Toll Plaza)	No.
B-4005d	Generator 150kVA prime power without soundproof and weatherproof enclosure, installed inside generator room. (Gosforth Toll Plaza)	No.
B-4005e	Generator 200kVA prime power without soundproof and weatherproof enclosure, installed inside generator room (Dalpark Toll Plaza)	No.
B-4005f	Generator 250kVA prime power with soundproof and weatherproof enclosure (Leandra, Trichardtsfontein & Ermelo Toll Plazas)	No.
B-4005g	Generator Routine Service @ 250hrs	No.

The rate tendered under sub-items B-4005 a to f, is for the provision of a new continues prime power diesel generator to be provided as per the Employer's Representatives instruction, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 subclause 3.2.3 PS17.

The rate tendered under sub-items B-4405 a to f shall include for full compensation for the removal of the old generator to a location at the Toll Plaza as agreed with the Employer, supply, installation, site testing including commissioning of the new generator including but not limited to, hardware, software, cabling, material, equipment, switchgear, controller and setup with communication/interface all other material not specifically mentioned to complete the installation. The Cost to deliver the generator to site will be as per the km rate tendered under sub item h (UPS delivery).

Payment shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor and following successful testing and approval by the Employer's Representative. The Contractor shall also submit an updated asset register to complete the process.

The rate tendered under sub-item B-4005 g above shall include for full compensation for the complete and detailed service of the emergency generator every additional 250hrs of operation, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3.

Payment shall be for additional service intervals due to power interruptions that are not part of the required 6-monthly service interval included in the contract. The Contractor shall submit sufficient proof to the Employer's Representative motivation for the costs of the additional services."

"Add the following payment items:

Item No	Description	Unit
<b>B-4006</b>	<b>Generator Automatic Mains Failure (AMF) Controller &amp; diesel bulk tank (if triggered items)</b>	
B-4006a	New Generator Automatic Mains Failure (AMF) Controller (if triggered)	No.
B-4006b	Add DSE 892 communication device (if triggered)	No.
B-4006c	Add SG485 communication device (if triggered)	No.
B-4006d	Diesel Bulk Storage Tank 2000lts, above ground – Detail design (Leandra Ramp Toll Plazas) (if triggered)	Lump Sum
B-4006e	Diesel Bulk Storage Tank 2000lts, above ground – Tender or quotation process as per Employer SCM approved process (if triggered)	Lump Sum

The rate tendered under sub-item B-4006a above shall include for full compensation for the supply, installation, testing, interface with SCADA and commissioning of a new AMF controller to capture the status of the generator and provide the required reports, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3, PS18.1.9.

Payment shall be made subject to successful delivery, installation, implementation, testing, and commissioning and witnessed, inspected and approval by the Employer's Representative

The Lump Sum tendered under B-4006-d, is for the provision of a new 2200lts above ground diesel storage tank for Leandra Remote Ramps. Toll Plaza, in terms of the Standard Specifications for Operations and

Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3.

The rate tendered under this item, is for the provision of a new 2000lts above ground diesel storage tank for Leandra Remote Ramps Toll Plaza, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3.

The rate tendered under the above item shall include for full compensation for the site survey, detailed design including drawings and a pricing schedule to obtain three quotations based on the Employers SCM proforma document for the supply and installation of a 2000lts above ground diesel storage tank, The Lump Sum tendered shall include the local authority and fire department approvals. The installation shall comply with all regulations, standards, and by-laws.

Payment shall be made subject to approval of the Main Contractors documentation after reviewed and approved by the Employer's Representative

The Lump Sum tendered for under sub-item B-4006-e is for the complete tender process to obtain market related prices for a new diesel bulk storage tank on the Detailed Design provided under sub item d. The Tender or quotation process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of tender. The Employer will issue the tender or request for quotation to the market and will nominate a 3rd party to evaluate the tenders.

The Employer will make payment to the Contractor after the Contractor has successfully obtained relevant market-related tender/bid prices approved by the Employer in accordance with the Employer Supply Chain Management procurement (SCM) process as applicable at the time of tender or quotation,

"Add the following payment items:

<b>Item No</b>	<b>Description</b>	<b>Unit</b>
<b>B-4007</b>	<b>Corrosion protection and painting at Toll Plazas.</b>	
B-4007a	Preliminary Design.	Lump Sum
B-4007b	Detail Design.	Lump Sum
B-4007c	Tender process as per Employer SCM approved process.	Lump Sum

The Lump Sum tendered for under sub-items B-4007-a & b is for the complete Preliminary Design and Detailed Design. The Preliminary Design shall be a high-level design to ensure all aspects are covered before the Contractor start the Detailed Design. Verification of the canopy structural integrity shall be part of the Preliminary Design stage. The Contractor will be informed of missing assets or information in the Design that must be addresses without additional cost to the Employer. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detailed Design.

The scope of the preliminary and Detailed design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The rate tendered for under sub-item B-4007-c is for the complete tender process to obtain market related prices for all corrosion work based on the detailed design provided under item a. The Tender process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of tender. The Employer will issue the tender to the market and will nominate a 3<sup>rd</sup> party to evaluate the tenders.

The Employer will make payment for each approved deliverable submitted. The Employer will make payments to the Contractor specialist sub-contractor as agreed through the Preliminary Design process and included in the sub-contract documentation. The Contractor shall obtain relevant market-related tender/bid prices in accordance with the Employer Supply Chain Management procurement (SCM) process as applicable at the time of tender or quotation. Payment of the final twenty percent (20%) will only be released after the as-built drawings and information was submitted and approved by the Employer's Representative."

"Add the following payment item:

Item No	Description	Unit
B-4008	Energy avoidance upgrades at Gosforth and Dalpark Toll Plazas (if triggered items)	
B-4008a	Supply and install eco-friendly and SABS approved building ceiling insulation.	m <sup>2</sup>

The rate tendered for under sub-item a shall be for the Final quality to be remeasured on site. The thermal insulation product shall have a high thermal resistance or R value >3.35 with class G1 (offices) fire rating in accordance with SANS 1499-T and SANS 428 in terms of Volume 3 Sub-Clause 3.2.3, PS39.

Payment shall be made based on the valid compliance certificate and final inspection by the Employer's Representative."

"Add the following payment items:

Item No	Description	Unit
<b>B-4009</b>	<b>New power skirting (Gosforth &amp; Dalpark Toll Plazas)</b>	
B-4009a	New electrical 3 x compartment power skirting.	Metre
B-4009b	16A socket outlets for power skirting.	No.

The rate tendered for under sub-items B-4009 a and b shall be for the design, supply, installation, testing, commissioning, COC of new power skirting in the control room and boardroom. In addition, the rate shall include removing the old power skirting and store on-site until the Employer can dispose of the removed assets. The three (3) compartment powder coating power skirting complete with covers, end caps, clips and mounting screws to complete the installation.

The power skirting length, colour (based on standard colours) and SANS standard 16A socket-outlet combination shall be confirmed by the Contractor with the Employer's Representative before the Contractor orders any material. Configuration to be finalized on-site i.e, location and combination of normal, dedicated UPS or emergency socket outlets.

The Employer shall make Payment based on the testing and verification of the installed asset by the Employer's Representative."

"Add the following payment items:

Item No	Description	Unit
<b>B-4010</b>	<b>Fire Detection system complete (Gosforth &amp; Dalpark Toll Plazas)</b>	
B-4010a	Fire detection system complete.	Lump Sum

The Lump Sum tendered for under this sub-item, is for the provision fire detection system in the Plaza buildings, in terms of Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 and Volume 3, PS40.

The Lump Sum tendered for under sub-item B-4010 a shall be for providing a new fire detection system, in terms of the latest regulations and standards, including SANS 10139, SANS 50054, SANS 530 and SANS 7240.

The Lump Sum tendered under sub-item B-4010 a shall include the Preliminary and Detail Design, supply, installation, testing and commissioning of the fire detection system for the control building and other building, i.e., Generator room, UPS room, storeroom, etc., not part of the control building.

The rate tendered under the above item shall include full compensation for the control panel, detectors wiring, wireways communication, mounting brackets, battery replacement, software, software licenses to provide a complete, functional and compliant system as per PS40.

Payment of sub item a shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor, witness, and approval by the Employer's Representative.

Payment of the Lump Sum shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor, witness, and approval by the Employer's Representative. The costs for the maintenance of the system shall be priced for under the payment item A-7003 once the system is successfully tested and commissioned by the Employer Representative."

"Add the following payment items:

Item No	Description	Unit
<b>B-4011</b>	<b>SCADA system</b>	
B-4011a	Mylar/Belden shielded or similar cabling including cable support system.	metres
B-4011b	SCADA Computer complete including storage (minimum 1,5-year data) per Toll Plaza.	No.
B-4011c	SCADA software setup and configuration per integrated system as listed below (1 - Generator).	No.
B-4011d	SCADA software setup and configuration per integrated system as listed below (2 – Bulk Fuel).	No.
B-4011e	SCADA software setup and configuration per integrated system as listed below (3 - UPS).	No.
B-4011f	SCADA software setup and configuration per integrated system as listed below (4 – Electrical Fence).	No.
B-4011g	SCADA software setup and configuration per integrated system as listed below (5 – Fresh air system).	No.
B-4011h	SCADA software setup and configuration per integrated system as listed below (6 – Power meter).	No.
B-4011i	SCADA software setup and configuration per integrated system as listed below (7 – PV System).	No.
B-4011j	SCADA software setup and configuration per integrated system as listed below (8 – Temperature sensor).	No.
B-4011k	SCADA software setup and configuration per integrated system as listed below (9 – Fire control panel).	No.
B-4011l	PLC interface between devices and SCADA computer.	No.
B-4011m	GMS module to send SMS's to the Contractor and ER and to access the system as secondary communication	No.
B4011n	Preliminary Design.	Lump Sum
B4011o	Detail Design.	Lump Sum

The rate tendered for under sub-items B-4011 a to m, is for the provision of a new complete SCADA or other approved monitoring system for each Toll Plaza, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3.

The rate tendered under the above item shall include for full compensation for the design supply, delivery to site, installation, setup, configuration, site testing including commissioning of the SCADA or other approved monitoring system including but not limited to, hardware, software, licenses for the contract period plus twenty-four (24) months, cabling, cabling support system, material, equipment, switch gear, fuses controllers, PLC's and all other material to complete the installation. The Contractor shall provide the Employer's Representative with remotes access to the SCADA or other approved monitoring system data through the Contractors data network or other approved communication network without any additional communication or service cost. The rate tendered under sub item m shall include the PLC and interface between devices and the SCADA server.

The rate tendered for under sub-item B-4011 n & o is for the complete SCADA design per Control Centre that shall include the Preliminary and Detailed Design. The Preliminary Design shall be a high-level design to ensure all aspects are covered before the Contractor start the Detailed Design. An accredited SCADA designer/installer shall perform all design work. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detailed Design.

The scope of the Preliminary and Detailed design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The SCADA or other approved monitoring and data capturing system shall include interfacing with the following systems (devices of interfaced with EPMS) on site:

1. Generator controllers;
2. Bulk diesel fuel level sensor;
3. UPS system;
4. Electric fence;
5. Fresh air supply systems
6. Power meter;
7. Photovoltaic system;
8. Temperature sensors in the UPS/server/battery rooms
9. Fire control panel

Data from available Modbus registers will be used to import into SCADA.

Payment shall be made subject to the Employer’s Representative approval of the Preliminary and Detailed design documentation and successfully managing the tender process.

Payment shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor and following successful testing and approval by the Employer’s Representative. The Employer will only release the final twenty percent (20%) after the Contractor submits the as-built drawings and information and to the Employer’s Representative approval. The Contractor shall also submit an updated asset register to complete the process.”

“Add the following payment items:

<b>Item No</b>	<b>Description</b>	<b>Unit</b>
<b>B-4012</b>	<b>Photovoltaic with Battery Energy Storage Solution (All Control Centres)</b>	
B-4012a	Preliminary Design.	Lump Sum
B-4012b	Detail Design.	Lump Sum
B-4012c	Tender process as per Employer CRM approved process.	Lump Sum

The Lump Sum tendered for under the above sub-items is for the Preliminary and Detailed Design of a new complete photovoltaic system with battery storage and backup for each Toll Plaza, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3, PS37.

The Lump Sum tendered for under sub-items B-4012 a & b is for the complete photovoltaic (solar PV) system with Battery Energy Storage System (BESS) design per Control Centre that shall include the Preliminary Design and Detailed Design. The Preliminary Design shall be a high-level design to ensure all aspects are covered including the site survey and energy audit before the Contractor start the Detailed Design. A professional accredited photovoltaic energy (PV) specialist (typical Energy Service Companies (ESCOs)) shall perform all design work. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detailed Design as per PS37.

The scope of the Preliminary and Detailed Design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The Lump Sum tendered for under sub-item B-4012 c is for the complete tender process to obtain market related prices for a photovoltaic (solar PV) system with Battery Energy Storage System (BESS) per Control Centre based on the approved Detailed Design. The Tender process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of tender. The Employer will issue the tender to the market and will nominate a 3rd party to evaluate the tenders.

The Employer will make payment to the Main Contractor after the Main Contractor has successfully obtained relevant market-related tender/bid prices approved by the Employer in accordance with the Employer Supply

Chain Management procurement (SCM) process as applicable at the time of tender or quotation, delivered, installed, tested, and commissioned the new photovoltaic (solar PV) system with Battery Energy Storage System (BESS) including energy audit and witnessed by the Employers Representative. Payment of the final twenty percent (20%) will only be released after the as-built drawings and information was submitted and approved by the Employer's Representative.

The Contractor shall also submit an updated asset register to complete the process.”

“Add the following payment item:

Item No	Description	Unit
<b>B-4013</b>	<b>Energy avoidance upgrades at Ermelo, Trichardtsfontein, and Leandra Toll Plazas (if triggered items)</b>	
B-4013a	Domestic Integrated Heat Pump.	Lump Sum

The Lump Sum tendered for under sub-item B-4013 a shall be for the design, supply, installation, electrical cabling, circuit breaker, isolator, testing, commissioning, of a new heat pump installation according to the latest regulations and standards for the existing hot water system. The rate tendered shall be in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3, PS39.

Payment shall be made subject to the supply, installation, testing, and commissioning by the Contractor, inspected and approval by the Employer's Representative.”

“Add the following payment item:

Item No	Description	Unit
<b>B-4014</b>	<b>Solar Photovoltaic carport at Gosforth, Dalpark, Ermelo, Trichardtsfontein, and Leandra Toll Plazas (if triggered items)</b>	
B-4014a	Preliminary Design.	Lump Sum
B-4014b	Detail Design.	Lump Sum
B-4014c	Tender process as per Employer SCM approved process.	Lump Sum

The Lump Sum tendered for under sub-items B-4014 a & b is for the complete photovoltaic (solar PV) carport Preliminary Design and Detailed Design. The Preliminary Design shall be a high-level design to ensure all aspects are covered/including before the Contractor start the Detailed Design. A professional accredited renewable energy (PV) specialist (typical Energy Service Companies (ESCOs)) shall perform all design work. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detailed Design.

The scope of the Preliminary and Detailed Design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The Lump Sum tendered for under sub-item B-4014 c is for the complete tender process to obtain market related prices for a photovoltaic (solar PV) carport system complete with new carports per Control Centre based on the approved Detailed Design. The Tender process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of tender. The Employer will issue the tender to the market and will nominate a 3rd party to evaluate the tenders.

The solar PV carport structure is to be manufactured off-site and assembled on-site, with no welding or cutting allowed on site. The Solar PV carports shall be manufactured to SABS standards and approved by a structural engineer.

Payment shall be made subject to the Employer's Representative approval of the Preliminary and Detailed design documentation and successfully managing the tender process.”

“Add the following payment items:

Item No	Description	Unit
<b>B-4015</b>	<b>Supply and installation of masts for Road and Area Lighting</b>	
B-4015a	P1, 10m Scissor mast including switchgear, earthing, luminaire mounting bracket/spigot for 1 x LED luminaire. (Allow for 13kg LED luminaire).	No.
B-4015b	P1B, Mast base for 10m Scissor mast as per pole/mast manufacturer, concrete test certificate and Engineer sign-off required after installation.	No.
B-4015c	P2, 15m Scissor mast including switchgear, earthing, luminaire mounting bracket/spigot for 2 x LED luminaire. (Allow for 26kg LED luminaire).	No.
B-4015d	P2B, Mast base for 15m Scissor mast as per pole/mast manufacturer, concrete test certificate and Engineer sign-off required after installation.	No.
B-4015e	P3, 18m Scissor mast including switchgear, earthing, luminaire mounting bracket/spigot for 2 x LED luminaire. (Allow for 26kg LED luminaire).	No.
B-4015f	P3B, Mast base for 18m Scissor mast as per pole/mast manufacturer, concrete test certificate and Engineer sign-off required after installation.	No.
B-4015g	P4, 8m fixed anti-vandal pole including switchgear, earthing, luminaire mounting bracket/spigot for 1 x LED luminaire. (Allow for 13kg LED luminaire).	No.
B-4015h	P5, 10m fixed anti-vandal pole including switchgear, earthing, luminaire mounting bracket/spigot for 1 x LED luminaire. (Allow for 13kg LED luminaire).	No.
B-4015i	P6, 12m fixed anti-vandal pole including switchgear, earthing, luminaire mounting bracket/spigot for 1 x LED luminaire. (Allow for 13kg LED luminaire).	No.
B-4015j	Allow for transport cost (truck with crane) (rate per km) from the pole/mast manufacturer to the Toll Plaza.	km
B-4015k	Mast and pole structure maintenance.	m <sup>2</sup>
B-4015l	Preliminary Design	Lump Sum
B-4015m	Detail Design	Lump Sum
B-4015n	Tender process as per Employer SCM approved process	Lump Sum

The rates tendered for under sub-items B-4015 a to i, is for the supply and installation of masts in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 and SANRAL Standard Specification 1 August 2021 with drawings and SANRAL Lighting Infrastructure Policy. The rate for the fixed poles shall include installation with baseplate or buried as indicated in the Employers typical drawings.

The rate tendered under the above items shall include for full compensation for the supply, installation testing and commissioning of the new mast. The Contractor shall provide all structural certificates and test reports on concrete cubes submitted for testing.

The rate tendered under sub-item B-4015 j, shall include for full compensation for the transport cost of the crane.

The rate tendered under sub-item B-4015 k, shall include for full compensation to paint and maintain the pole or mast in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3, PS 15.8. The rate tendered shall include transport, toll fees, material, consumables labour, ladders, scaffolding cherry picker to complete the painting and maintenance work on the mast or pole.

The rate tendered for under sub-items B-4015 l & m is for the complete Preliminary Design and detailed design for the Toll Plaza road and area lighting. The Preliminary Design shall be a high-level design to ensure all aspects are covered before the Contractor start the Detail Design. A registered person shall design the road and area lighting for each Toll Plaza as triggered by the Employer. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detail Design.

The scope of the Preliminary and Detail Design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The rate tendered for under sub-item B-4015 n is for the complete tender process to obtain market related prices for new luminaires, security and intelligent lighting management and new poles. The Tender process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of

tender. The Contractor shall make use of funds in Prov Sum item B-6012a for the road and area lighting upgrade and asset replacement.

Payment shall be made subject to the Employer's Representative approval of the Preliminary and Detailed design documentation and successfully managing the tender process."

"Add the following payment items:

Item No	Description	Unit
B-4016a	Security cameras, weatherproof, wireless and battery-operated including motion detection or analytics.	No.
B-4016b	GPRS control panel, weatherproof, wireless and battery operated for commercial outdoor application.	No.

The rate tendered for under sub-items B-4016 a to b shall be for the provision of new security cameras to monitor high-risk areas to assist with the prevention of theft and vandalism, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3 PS18.6. The camera's intended function shall not be affected by the Toll Plaza electrical or data network infrastructure. The CCTV camera shall be a standalone device with a battery and wireless communication with the control room.

The rate tendered under the above item shall include for full compensation for the design, supply, delivery to site, installation, mounting brackets, battery replacement, software, software licenses including analytics license, hardware, data communication site testing including commissioning.

Payment of sub sub-items B-4023 a to b shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Main Contractor, witness and approval by the Employer's Representative.

Payment of sub item d shall be made based on the number of additional cameras installed at the Toll Plaza."

"Add the following payment items:

Item No	Description	Unit
<b>B-4017</b>	<b>Trenching and Backfilling</b>	
B-4017a	Trenching - Type A (hand trenched)	m
B-4017b	Trenching - Type D/E (hand trenched)	m
B-4017c	Bedding and backfill - Type A (backfill in minimum layers of 150mm)	m
B-4017d	Bedding and backfill - Type D/E (backfill in minimum layers of 150mm)	m

The rate tendered for under this sub-item, is for trenching and back filling of trenches when required, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3 and SANRAL Standard Specification 1 August 2021 with drawings and SANRAL Lighting Infrastructure Policy. See LV Cable trench type A standard details included in C34 to Volume 4 drawing TD-E-P-3000-1-V1 & sleeve installation standard details TD-E-P3000-1-V1 LV Cable Trench & TD-E-P3001-1-V1 MV Cable Trench.

The rate tendered under the above item shall include for full compensation for all traveling, labour and material equipment concrete, concrete tests and compaction tests to complete the installation. The Contractor shall also provide security until the cement is sufficiently cured to protect the electrical cable.

Backfilling shall be in compacted layers of one hundred and fifty millimetres (150mm) to ninety three percent (93%) MOD AASHTO shall be included in the tendered rate.

Payment shall be made subject to successful inspection of the trench after the Contractor invited that Employer's Representative to inspect the trench and then after the Employer's Representative inspected the bedding and backfilling process based on the trench type. The Employer's Representative must also confirm the total meters of trenching claimed."

"Add the following payment items:



Item No	Description	Unit
<b>B-4018</b>	<b>Cabling</b>	
B-4018-a	PVC SWA PVC 600/1000V SANS 1507 4 core cable - 4mm <sup>2</sup> Cu ECC	m
B-4018b	PVC SWA PVC 600/1000V SANS 1507 4 core cable - 6mm <sup>2</sup> Cu ECC	m
B-4018c	PVC SWA PVC 600/1000V SANS 1507 4 core cable - 10mm <sup>2</sup> Cu ECC	m
B-4018d	PVC SWA PVC 600/1000V SANS 1507 4 core cable - 16mm <sup>2</sup> Cu ECC	m
B-4018e	PVC SWA PVC 600/1000V SANS 1507 4 core cable - 35mm <sup>2</sup> Al ECC	m
B-4018f	BCEW - 4mm <sup>2</sup> Cu	m
B-4018g	BCEW - 6mm <sup>2</sup> Cu	m
B-4018h	BCEW - 10mm <sup>2</sup> Cu	m

The rate tendered for under this sub-item, is for the provision of a new SANS 1507 multicore PVC insulated cables, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3.

The rate tendered under the above sub-item shall include for full compensation for the supply, delivery to site, installation, site testing, ECOC including commissioning of the electrical cable.

All electrical cables shall be 4 or 3 core cables. Cables shall be:

- solid-core aluminum
- stranded copper

Payment shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor and following successful testing and approval by the Employer's Representative. The Employer's Representative must also confirm the final measured cable length claimed."

"Add the following payment items:

Item No	Description	Unit
<b>B-4019</b>	<b>Cable Terminations</b>	
B-4019a	PVC SWA PVC 600/1000V SANS 1507 4 core cable termination - 4mm <sup>2</sup> Cu ECC (if triggered)	No.
B-4019b	PVC SWA PVC 600/1000V SANS 1507 4 core cable termination - 6mm <sup>2</sup> Cu ECC (if triggered)	No.
B-4019c	PVC SWA PVC 600/1000V SANS 1507 4 core cable termination - 10mm <sup>2</sup> Cu ECC (if triggered)	No.
B-4019d	PVC SWA PVC 600/1000V SANS 1507 4 core cable termination - 16mm <sup>2</sup> Cu Solid core AL ECC (if triggered)	No.
B-4019e	PVC SWA PVC 600/1000V SANS 1507 4 core cable termination - 35mm <sup>2</sup> Al ECC Solid core AL ECC (if triggered)	No.
B-4019f	BCEW - 4mm <sup>2</sup> Cu – core cable terminations (if triggered)	No.
B-4019g	BCEW - 6mm <sup>2</sup> Cu – core cable terminations (if triggered)	No.
B-4019h	BCEW - 10mm <sup>2</sup> Cu – core cable terminations (if triggered)	No.

The rate tendered for under this sub-item, is for the provision of a new SANS 1507 multicore PVC insulated cables, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 subclause C3.2.3.

The rate tendered under the above sub-item shall include for full compensation for the supply, delivery to site, installation, site testing, ECOC including commissioning of the electrical cable.

Payment shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor and following successful testing and approval by the Employer's Representative. The Employer's Representative must also confirm the final measured cable length claimed."

"Add the following payment items:

Item No	Description	Unit
<b>B-4020</b>	<b>PVC SWA PVC 600/1000V SANS 1507 4 core cable joints</b>	
B-4020a	PVC SWA PVC 600/1000V SANS 1507 4 core cable joints - 4mm <sup>2</sup> Cu	No.
B-4020b	PVC SWA PVC 600/1000V SANS 1507 4 core cable joints - 6mm <sup>2</sup> Cu	No.
B-4020c	PVC SWA PVC 600/1000V SANS 1507 4 core cable joints - 10mm <sup>2</sup> Cu	No.
B-4020d	PVC SWA PVC 600/1000V SANS 1507 4 core cable joints - 16mm <sup>2</sup> Cu	No.
B-4020e	PVC SWA PVC 600/1000V SANS 1507 4 core cable joints - 35mm <sup>2</sup> Al ECC	No.

The rate tendered for under this sub-item, is for the provision of a new SANS 1507 multicore PVC insulated cables, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause C3.2.3.

The rate tendered under the above sub-item shall include for full compensation for the supply, delivery to site, installation, site testing, ECOC including commissioning of the electrical cable.

Payment shall be made subject to successful delivery, installation, implementation, testing and commissioning by the Contractor and following successful testing and approval by the Employer's Representative. The Employer's Representative must also confirm the final measured cable length claimed."

Item No	Description	Unit
<b>B4021</b>	<b>Fibre optic cable upgrade</b>	
B4021a	Preliminary Design	Lump Sum
B4021b	Detail Design	Lump Sum
B4021c	Tender process as per Employer SCM approved process	Lump Sum

The rate tendered for under sub-items B-4021a to c is for the complete Preliminary Design and detailed design for the fibre optic cable upgrade and replacement between the Leandra to Leandra Ramp, Dalpark to Denne Road and Gosforth to Gosforth West Ramp Toll Plazas. The Preliminary Design shall be a high-level design to ensure all aspects are covered before the Contractor start the Detail Design. A registered person shall design the new fibre optic communication link between the mainline and Ramp Toll Plazas as triggered by the Employer. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Preliminary and Detail Design.

The scope of the Preliminary and Detail Design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services.

The rate tendered for under sub-item B-4021-c is for the complete tender process to obtain market related prices for the supply and installation of the new fibre optic link based on the approved detailed design by the Main Contractor. The Tender process shall comply with the Employers Supply Chain Management procurement (SCM) applicable at the time of tender. The Contractor shall make use of funds in Prov Sum item B-6002a for the upgrade and asset replacement.

Payment shall be made subject to the Employer's Representative approval of the Preliminary and Detailed design documentation and successfully managing the tender process.

"Add the following payment items:

Item No	Description	Unit
<b>B-4022</b>	<b>New LED luminaires for Gosforth and Dalpark Mainline Toll Plazas</b>	
B-4022a	LR 1 - Supply and install new recessed LED luminaires for the control building rooms to replace the existing	No.
B-4022b	LR 2 - Supply and install new surface mounted LED luminaires for the control building to replace the existing	No.
B-4022c	LMS 1 - Supply and install new occupancy sensor.	No.

The rate tendered under sub-items B-4022-a & b shall include full compensation for the supply, transport to site, installation, and testing of each luminaire installed in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3 PS 9. The existing luminaires are 600 x 600 to fit the existing ceiling grid.

The rate tendered under sub item B-4022c, is for the supply and installation of an occupancy sensor to be installed per location i.e. admin office, boardroom, control room, booth, etc.

Payment shall be made subject to successful delivery, installation, and testing, including illumination (Lux) measurements to verify compliance with the OHS Act by the Contractor and approved by the Employer's Representative."

"Add the following payment items:

Item No	Description	Unit
<b>B-4023</b>	<b>New LED lamps for Ermelo, Trichardtsfontein and Leandra Mainline Toll Plazas.</b>	
B-4023a	LA 1 - New High efficiency LED lamp upgrade for existing luminaires.	No.
B-4023b	LB 1 - Modify existing luminaire to allow new LED lamps to operate on direct mains.	No.
B-4023c	LMS 1 - Occupancy sensor.	No.

The rate tendered under sub-item B-4023-a shall include for full compensation for the supply, transport to site, installation, and testing of the new LED lamps to replace the old 54w fluorescent lamps terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3, PS9.

The rate tendered under sub item B-4023-b shall include full compensation for any modification to the existing Philips EFIX TBS260, TCS260 and TPS262 luminaires to allow the LED lamp upgrade. The Contractor shall remove all redundant control gear to enable the lamp to operate on direct mains as specified by the lamp manufacturer. The rate shall also include the full compensation for relocating the luminaire(s) to the above working areas to provide sufficient illumination (Lux) on the working area as required by the OHS Act.

The rate tendered under sub item B-4023-c, is for the supply and installation of an occupancy sensor to be installed per location i.e. admin office, boardroom, control room, booth, etc.

The Employer will release payment subject to the successful delivery, installation, testing, and illumination (Lux) testing to confirm compliance with OHS Act and approval by the Employer's Representative. All old lamps shall be disposed of in an environmentally approved method with a disposal certificate to be submitted before final payment is released."

"Add the following payment item:

Item No	Description	Unit
<b>B-4024</b>	<b>New Sump pumps (Ermelo Toll Plaza)</b>	
B-4024a	New fixed sump pump tunnel and manhole.	No.
B-4024b	New portable sump pump tunnel and manhole.	Lump Sum

The rate tendered under sub-item B-4024, is for the supply and installation of a new sump pump in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3, PS44.

The rate tendered under the above items shall include for full compensation for the supply, transport to site, installation, testing, and the commissioning of the fixed sump pump. The Contractor shall also provide a portable sump pump that can be deployed immediately during emergencies where required.

Payment shall be made subject to delivery, proof of ownership provided, successful testing and added to the Employer's asset register for Trichardtsfontein mainline and approval by the Employer's Representative. The Contractor shall also submit an updated asset register to complete the process."

"Add the following payment item:

Item No	Description	Unit
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<b>B-4025</b>	<b>Alarm annunciator panel for Gosforth mainline, Gosforth West, Dalpark and Denne Road Toll Plazas.</b>	
B-4025-a	New alarm annunciator panel – Preliminary Design	Lump Sum
B-4025b	New alarm annunciator panel - Detail Design.	Lump Sum
B-4025c	Tender process as per Employer SCM approved process.	Lump Sum

The Lump Sum under sub-item B-4025, is for the provision and/or upgrade of all the existing alarm annunciator panel for Gosforth mainline, Gosforth West, Dalpark and Denne Road Toll Plazas in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3.

The Lump Sum tendered for under sub-items B-4025-a to b shall be for the design, supply, installation, traveling, toll fees, testing, and commissioning of a complete solution for a new alarm annunciator panel to replace the existing Conlog OMNI-16a Annunciator in terms of Volume 3 Sub-Clause 3.2.3, PS45. The tendered rate shall include all site surveys and information gathering to be able to provide a complete Detailed Design.

The scope of the Preliminary and Detailed design shall include what is described as Stage 2 & 3 Normal Services in the Guidelines for Services and Processes for Estimating Fees for Persons Registered in terms of the Engineering Profession Act, 2000, (Act No 46 of 2000). This will also include all the required documentation and reports as would be required for Stage 2 & 3 Normal Services

The Employer shall make payment based on the successful testing, commissioning, and approval of the installation by the Employer's Representative. The Contractor shall also submit an updated asset register to complete the process."

"Add the following payment item:

Item No	Description	Unit
<b>B-4026</b>	<b>Tunnel security screen (Gosforth &amp; Dalpark Toll Plazas)</b>	
B-4026-a	Supply and install new screen gate in the tunnel.	No.

The rate tendered for under sub-item B-4026 a shall be for the design, supply, installation of a new security screen gate to provide more space to work on the exiting inverters at Dalpark and allow the installation of inverters at Gosforth mainline Toll Plaza, in terms of Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 and Volume 3, PS41.

The Contractor shall remove the existing screens and will be allowed to use some of the existing screen for the new security screen gate. The Contractor shall store the existing screens removed at a location agreed with the Employer's Representative.

The Employer shall make Payment based on the testing and verification and approval of the installed asset by the Employer's Representative."

"Add the following payment items:

Item No	Description	Unit
<b>B-4027</b>	<b>Medium voltage power cable (Gosforth Toll Plaza)</b>	
B-4027-a	95mm <sup>2</sup> XLPE 6.6 / 6.6 kV Cu 3 core MV cable (Armoured)	m
B-4027-b	95mm <sup>2</sup> XLPE 6.6 / 6.6 kV Cu 3 core MV cable joint	No.
B-4027-c	95mm <sup>2</sup> XLPE 6.6 / 6.6 kV Cu 3 core MV cable termination (all three cores)	No.
B-4027-d	Testing and ECOC	No.

The rate tendered for under sub-items B-4027-a to c is for the supply and installation of a new SANS approved 95mm<sup>2</sup> XLPE 6.6 / 6.6 kV Cu 3 core MV steel wired armoured cable, joints and terminations, in terms of the Standard Specifications for Operations and Maintenance of CTROM Projects: Electrical and Mechanical Equipment Volume 2 Book 3 as amended under Volume 3 Sub-Clause 3.2.3.

The rate tendered for under sub-items B-4027-d is for testing the cable after new installation or repairs done and issuing the ECOC in terms of the Standard Specifications for Operations and Maintenance of CTROM

Projects: Electrical and Mechanical Equipment Volume 2 Book 3 Sub-Clause 4.11 as amended under Volume 3 Sub-Clause 3.2.3.

The Employer shall make Payment based on the installation, verification, and testing of the installed asset by the Contractor and witnessed by the Employer’s Representative.”

“Add the following payment item:

Item No	Description	Unit
<b>B-4028</b>	<b>Cat ladder for the lane canopies (Denne Road Ramp Toll Plazas)</b>	
B-4028-a	New cat ladder.	No.

The rate tendered for under sub-item B-4028-a is for the provision of a new steel cat ladder like the existing cat ladders already installed at Dalpark mainline and Gosforth mainline Toll Plazas for the lane canopies at Denne Road Ramp Toll Plazas as provided on drawing 99 under Part C4 Site information.

The Employer shall make Payment based on the installed asset and approved by the Employer’s Representative.”

### **B-5000 MISCELLANEOUS: OTHER PAYMENT ITEMS**

Add the following to item B-5001:

The Lump sum tendered for the new access control system shall include the additional access requirement as provided in Volume 3, Part C3, Scope of Works PS18.11.

### **B-6000 PROVISIONAL SUMS PAYMENTS**

Add the following new payment items:

Item No	Description	Unit
<b>B-6009</b>	<b>Supply of EMVCO compliant hardware and software</b>	
B-6009a	Supply of EMVCO compliance hardware and software, over and above B-3014	Prov. Sum
B-6009b-	Overhead charges and profit in respect of above-mentioned item	Percentage (%)

The Provisional Sum provided under sub item a) will cover the additional costs of the supply of EMVCO compliant system if not covered in payment item B-3014.

The Provisional Sum shall be expended in accordance with the provisions of Clause 13.5 [Provisional Sums] of Volume 1 Book 1, the “FIDIC Conditions of Contract for Design, Build and Operate Projects”, to pay for the supply of EMVCO Compliant Hardware and Software.

The percentage tendered under sub-item b) for overhead charges and profit shall be applied to the actual expenditure in terms of sub item a).

Item No	Description	Unit
<b>B-6010</b>	<b>Provision of Civil Works to convert mixed manual/ETC lanes and mixed card/ETC lanes to dedicated ETC lanes (including signage)</b>	
B-6010a	Provision of civil works to convert mixed manual/ETC lanes and mixed card/ETC lanes to dedicated ETC lanes (including signage)	Prov. Sum
B-6010b	Overhead charges and profit in respect of above-mentioned item	Percentage (%)

The Provisional Sum provided under sub item a) will cover the costs for the provision of civil works to convert to mixed manual/ETC lanes and mixed card/ETC lanes to dedicated ETC lanes (including signage).

The Provisional Sum shall be expended in accordance with the provisions of Clause 13.5 (Provisional Sums) of Volume 1 Book 1, the “FIDIC Conditions of Contract for Design, Build and Operate Projects”, to pay for the provision of civil works to convert to mixed manual/ETC lanes and mixed card/ETC lanes to dedicated ETC lanes (including signage).

The percentage tendered under sub-item b) for overhead charges and profit shall be applied to the actual expenditure in terms of sub item a) and shall cover the Contractor’s procurement and management of quotations and the management of execution for the provision of civil works to convert mixed manual/ETC lanes and mixed card/ETC lanes to dedicated ETC lanes (including signage).

Item No	Description	Unit
<b>B-6011</b>	<b>Provision for the upgrade of the plaza to the new SANRAL Brand</b>	
B-6011a	Provision for the upgrade of the plaza to the new SANRAL Brand	Prov. Sum
B-6011b	Overhead charges and profit in respect of above-mentioned item	Percentage (%)

The Provisional Sum provided under sub item a) will cover the costs for the upgrade of the plaza to the new SANRAL Brand.

The Provisional Sum shall be expended in accordance with the provisions of Clause 13.5 [Provisional Sums] of Volume 1 Book 1, the “FIDIC Conditions of Contract for Design, Build and Operate Projects”, to pay for the upgrade of plaza to the new SANRAL Brand.

The percentage tendered under sub-item b) for overhead charges and profit shall be applied to the actual expenditure in terms of sub item a) and shall cover the Contractors procurement and management of quotations and the management of execution of for the upgrade of plaza to the new SANRAL Brand.

Item No	Description	Unit
<b>B-6012</b>	<b>Provision for the Upgrade / Replacement of Existing Electrical Equipment(s) to Energy Saving Equipment(s)</b>	
B-6012a	Provision for the Upgrade / Replacement of Electrical Equipment to Energy Saving Equipment(s)	Prov. Sum
B-6012b	Overhead charges and profit in respect of above-mentioned item	Percentage (%)

The Provisional Sum provided under sub item a) will cover for the quotation or tender amount for the Upgrade / Replacement of existing Electrical Equipment(s) to Energy Saving Equipment(s).

The Provisional Sum shall be expended in accordance with the provisions of Clause 13.5 (Provisional Sums) of Volume 1 Book 1, The “FIDIC Conditions of Contract for Design, Build and Operate Projects, to pay for any Upgrade(s) / Replacement(s) of Electrical Equipment to Energy Saving Equipment.

The percentage of tendered under sub item b) for the overhead charges and profit shall be applied to actual expenditure in terms of sun item a) and shall cover for Contractor Costs related to management and payment during the execution of any Upgrade(s) / Replacement(s) of Electrical Equipment to Energy Saving Equipment(s).

Item No	Description	Unit
B-6013	Provision for the Upgrade to Security Toll Booths	
B-6012a	Provision for the Upgrade to Security Toll Booths	Prov Sum
B-6012b	Overhead charges and profit in respect of above-mentioned item	Percentage (%)

The Provision and Sum provided under sub item a) will cover for the quotation or tender amount for the Upgrade of existing toll booths to Security type of toll booths.

The Provisional Sum shall be expended in accordance with the provisions of clause 13.5 (Provisional Sums) of Volume 1 Book 1, The “FIDIC Conditions of Contract for Design, Build and Operate Projects, to pay for the Upgrade to Security of existing Toll booths.

The percentage of tendered under sub item b) for the overhead charges and profit shall be applied to actual expenditure in terms of sun item a) and shall cover for Contractor Costs related to management and payment during the execution of the upgrade of existing toll booths to Security type toll booths.

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>
<b>B-6014</b>	<b>Nominated Subcontract DB Works and Services</b>	
B-6014a	Nominated Subcontract DB Works and Services (including Provisional Sums and allowances in the Nominated Subcontract)	Prov Sum
B-6014b	Overhead charges and profit in respect of the above-mentioned item	Percentage (%)

The Provisional sum provided under sub-item a) will be used to pay the Nominated Subcontractor DB costs in terms of the Nominated Subcontractor agreement and as approved by the Employer and/or Employer Representative. The Provisional Sum provided under sub item a) will cover the full value of the DB work performed under the Toll System Nominated Subcontract.

The Provisional Sum shall be expended in accordance with the provisions of Clause 13.5 (Provisional Sums) of Volume 1 Book 1, the "FIDIC Conditions of Contract for Design, Build and Operate Projects", to pay the Nominated Subcontractor in terms of the subclause 13.5.b of Volume 1 Book 1.

The percentage tendered under sub-item b) for overhead charges and profit shall be applied to the actual expenditure in terms of sub item a) and shall cover the Contractor's management of the Nominated Subcontractor. The Contractor shall produce the monthly Nominated Subcontractor invoice and the Contractor's monthly statement of payments to the Nominated Subcontractor, as substantiation for any payments under this item. The Contractor's monthly statement shall detail any deductions applied by the Contractor and costs recovered from the Nominated Subcontractor.

### **C3.2.8 PARTICULAR AMENDMENTS TO THE STANDARD SPECIFICATIONS FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: ETC INTEROPERABILITY BUSINESS RULES (VOLUME 2 BOOK 8a)**

The number of each Clause as a Particular Specification in section consist of the Prefix PS followed by a number corresponding to the number of the relevant Clause in the Standard Specifications for Operations and Maintenance of CTROM Projects: Etc Interoperability – Business Rules (Volume 2 Book 8a). The number of any new Clause which does not form part of any Clause in the Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability – Business Rules (Volume 2 Book 8a) and which is included herein, is also prefixed by PS followed by a number. Such new numbers follow on the last Clause used in the relevant section of the Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability Business Rules (Volume 2 Book 8a).

There are no changes to any Clauses in the Standard Specifications for Operations and Maintenance of CTROM Projects: ETC Interoperability – Business Rules (Volume 2 Book 8a).

#### **PS1 INTRODUCTION**

##### **PS1.1 Business Rules**

###### **PS1.1.2**

The 9<sup>th</sup> line onwards to be modified to read as follows:

“.../Concession Contract. The third is applicable to the VPC and will not be discussed in this document.”

##### **PS1.2 Business Processes**

Alter subclause 1.2.2 add the following new subclause:

###### **“PS1.2.3**

For the purpose of this document, the following definitions will apply for the Transfer and Acceptance of transactions:

- a) The Transfer of Acceptance of Transactions on a **non-recourse** basis means the transfer of all rights and obligations under the Transactions Records by the Toll Agency (The Transferor) and the corresponding acceptance of these rights and obligations by the TCH (The Transferee), where the Transferor **is not liable** for any default, loss or defect relating to the Transaction Records in terms of which the rights and obligations are transferred.
- b) The Transfer of Acceptance of transactions on a **recourse** basis means the transfer of all rights and obligations under the Transaction Record by the Toll Agency (the Transferor) and the corresponding acceptance of these rights and obligations by the TCH (The Transferee), where the Transferor **may be held liable** for any default, loss or defect relating to the Transaction Record in terms of which the rights and obligations are transferred.”

The subclause 1.2.3 to be modified to read as follows:

###### **“PS1.2.4**

For an Opt-in Toll Agency, the TCH will accept and pay for all compliant and complete Transaction Records (as far as possible for the TCH to verify) transferred on a non-recourse basis. The TCH will accept and pay for Transaction Records generated by vehicles associated with a customer account transferred on a non-recourse basis.

Transaction not associated with a customer account will still be accepted by TCH on behalf of VPC under a “back-to-back” arrangement for all compliant Transaction Records. VPC will make payment for the transfer of these transactions that takes place on non-recourse basis.”

The subclause 1.2.4 to be modified to read as follows:



#### **“PS1.2.5**

For an opt Out Toll Agency the VPC element of the transaction accepted and paid for all other compliant transactions transferred on a non-recourse basis will not apply.”

The subclause 1.2.5 to be modified to read PS1.2.6

The subclause 1.2.6 to be modified to read PS1.2.7

The subclause 1.2.7 to be modified to read PS1.2.8

The subclause 1.2.8 to be modified to read as follows:

#### **“PS1.2.9**

In addition to the above, the processing fee will be upwardly adjusted for transactions received outside the period specified for the transfer and acceptance of transactions on the non-recourse basis and the specification in TA Business Rule 103. The higher processing fee will be applied to all transactions received outside of the period specified for the Transfer and Acceptance of transactions on the non-recourse basis but are still processed by the TCH at the Toll Agency’s own risk.”

### **PS1.3 Layout of this Document**

#### **PS1.3.2**

The 4<sup>th</sup> line to be modified to read as follows:

“... to another entity, render a service (including transfer and acceptance of transactions on non-recourse basis) and charge a processing fee ...”

## **PS2 ENTITY AND SERVICE PROVIDER INTERACTION**

### **PS2.1 Inter Entity Relationships**

#### **PS2.1.6**

At the end of subclause 2.1.6 add the following:

“The purpose of the steering committee will be to coordinate the interaction/interface between the Contractor, the TCH and Toll Agencies or Concessionaires – all under the guidance of SANRAL related to the roll-out of ETC on Concessionaires and CTROM routes and the interfacing and integration to the TCH. The items discussed in the steering committee will include, inter alia (1) The processing fee model (2) The implementation agreements (3) Marketing planning (4) Integrated roll-out programs (5) Operational matters (6) System integration matters (7) Commercial Matters (8) Legal matters (9) Financial Matters.”

#### **PS2.1.12**

The 1<sup>st</sup> line of this subclause 2.1.12 to be modified to read as follows:

“The TCH entity will accept transactions transferred from a Toll Agency on a non-recourse basis and pay for each Transaction .....”

#### **PS2.1.13**

The 1<sup>st</sup> sentence of subclause 2.1.13 to be modified to read as follows:

“For Opt-in Toll Agencies, the TCH will also accept the transfer of transactions on a non-recourse basis on behalf of the VPC for compliant Transaction Records sent to it but will reject non-compliant transactions. VPC will pay for the transfer of these transactions on a non-recourse basis. The VPC will levy ...”

#### **PS2.1.15**

The 2<sup>nd</sup> line of subclause 2.1.15 to be modified to read as follows:

“... collection process fails, the violation will be passed for processing according to the legal requirement (AARTO or CPA). When a violation passes ...”

### **PS3 KEY BUSINESS RULES**

PS3.3 Transfer of transactions on a non-recourse basis accepted by the TCH and payment for this transfer to the Toll Agency from TCH

#### **PS3.3.1**

The 2<sup>nd</sup> line of subclause 3.3.1 to be modified to read as follows:

“... is based is the concept of transfer and acceptance of transactions on a non-recourse basis. A Toll Agency is being ...”

The 4<sup>th</sup> to 6<sup>th</sup> line of subclause 3.3.1 to be modified to read as follows:

“... TCH entity. The TA agrees to this because the TCH entity, or for Opt-In Toll Agencies, the VPC entity, undertakes to accept the transfer of transactions on a non-recourse basis and pay the appropriate toll ...”

#### **PS3.3.2**

The 2<sup>nd</sup> line of subclause 3.3.2 to be modified to read as follows:

“... as discussed later, because of the acceptance and payment for the transfer of transactions on a non-recourse basis, there will be a natural tendency for ...”

#### **PS3.3.4**

Subclause 3.3.4 to be modified to read as follows:

“It is necessary to define fairly specifically the terms under which the TCH entity will accept and make payment for the transfer of transactions on a non-recourse basis, and this must be considered in the light of the checks that the TCH System can reasonably conduct. The acceptance and payment for the transfer of transactions on a non-recourse basis is incorporated into the following Key Business Rule:”

#### **PS3.3.4 Key Business Rule 2(b)**

The 1<sup>st</sup> line of this subclause to be modified to read as follows:

“For conventional electronic toll collection, the TCH entity shall accept transactions transferred on non-recourse basis and make payment to Toll Agencies ...”

The 4<sup>th</sup> line of this subclause to be modified to read as follows:

“...Agencies. For an Opt-In Toll Agency, the acceptance of transactions transferred on a non-recourse basis and subsequent payment will be extended as...”

The 3<sup>rd</sup> line of the second paragraph of this subclause to be modified to read as follows:

“... otherwise it will be rejected, and the Toll Agency informed. In addition, it must satisfy one of ...”

#### **PS3.3.10**

The 1<sup>st</sup> line of this subclause to be modified to read as follows:

“Related to payments and acceptance of transactions transferred on a non-recourse basis is the frequency ...”

#### **PS3.3.10 Key Business Rule 4**

This clause to be deleted and replaced with the following:

“Key Business Rule 4. The normal cycle for invoicing for toll transactions and inter Entity account settlement in relation to payment due shall not exceed seven working days.

The normal cycle for invoicing of processing fee shall be daily to coincide with the processing on the TCH, but the settlement of the processing fees shall be monthly.”

#### **PS4 BUSINESS RULES FOR TOLL AGENCY**

##### **PS4.2.3 TA Business Rule 101**

The 1<sup>st</sup> line of this subclause to be modified to read as follows:

“The Actual Class will default either to the MVC class (in mixed/manual lanes), or AVC class (when the collector class is not included in the transaction from a mixed/manual), or the AVC class when the AVC classification is available for dedicated lanes, or the registered ...”

##### **PS4.2.5**

The 1<sup>st</sup> line of this subclause to be modified to read as follows:

“Activity 4.2.4a) is associated with the potential of acceptance and payment of transactions transferred on a non-recourse basis at the TCH or VPC ...”

##### **PS4.2.6**

The 7<sup>th</sup> line of this subclause to be modified to read as follows:

“In the case of a Catastrophic Event, special permission ...”

##### **PS4.2.6 TA Business Rule 103(b)**

The 3<sup>rd</sup> bullet of this subclause to be modified to read as follows:

“The remaining 10% of the Transaction Records not later than 5 days after the date and time of the Chargeable Event that generated them (The transfer of these transactions on a recourse basis will be accepted and the TCH will endeavour to process them. If these transactions can be allocated to a valid account before the end of the grace period, payment will be made by the TCH, if not, the transactions will be rejected by the TCH).”

##### **PS4.2.6 TA Business Rule 104(b)**

The 3<sup>rd</sup> line of this subclause to be modified to read as follows:

“... the tolling point and under no circumstances, other than the approved Catastrophic Event, shall they be sent later than 5 days after ...”

##### **PS4.2.6 TA Business Rule 105(b)**

The 1<sup>st</sup> line of the 1<sup>st</sup> paragraph of this subclause to be modified to read as follows:

“For conventional electronic toll collection, the acceptance of the transfer of Transactions Records sent ...”

The last line of the 1<sup>st</sup> paragraph of this subclause to be modified to read as follows:

“... Chargeable Event that generated them, shall be on a non-recourse basis.”

The 1<sup>st</sup> and 2<sup>nd</sup> lines of the 2<sup>nd</sup> paragraph of this subclause to be modified to read as follows:

“For both open and conventional electronic toll collection, the acceptance of transfer of transactions records sent to the TCH later than 24 hours after the date and time of the Chargeable Event shall be on a recourse basis and the TCH shall ...”

Delete the 4<sup>th</sup> paragraph of this subclause and replace with the following:

“The acceptance of the transfer of transaction records linked to post-paid account where the payment means is specified as ‘credit card’ and received after 24 hours but not later than 25 days will be on a recourse basis

(as 45 days are specified in the Acquiring Bank Agreement and time should be allowed for the TCH to process the transactions received).”

This new subclause to be inserted after subclause PS4.2.6 TA Business Rule 105(b):

**“PS4.2.7**

For the purpose of this document, a Catastrophic Event means an event or occurrence that is the type of event which is not part of normal operations and results in the situation where the Transaction Records from the Toll Agency require transfer and acceptance for processing outside the normal business rules. The risk and the obligation shall be divided according to the following categories:

**Category 1:** If the event is not under the control of both the TA and the TCH;

The transfer and acceptance of Transaction Records shall be on a recourse basis. The risk would be in the Transaction Records not recovered from the Customers, e.g.: the transaction which could not be assigned to a customer account before the end of the grace period or when a Customer disputes the transaction after it was assigned to his/her account.

Where the event is because of a third party, not under the control of either party, the risk shall be shared since the obligation is not directly trace-able to the Toll Agency or the Transaction Clearing House.

The TCH shall record and report on Transaction Records not processed and processed due to a Catastrophic Event. The process to record losses due to transactions disputed after it was assigned to an account will be done outside the system as part of the Toll Agency’s dispute approval and resolution process.

**Category 2:** If the event is under the control of the TA;

The transfer and acceptance of Transaction Records shall be on a recourse basis. The risk would be in the Transaction Records not recovered from the Customers, e.g.: the transaction which could not be assigned to a customer account before the end of the grace period or when a customer disputes the transaction after it was assigned to his/her account.

Where the event is because of a failure of a process under the control of the Toll Agency, the risk and subsequent loss shall be for the Toll Agency.

The TCH shall record and report on Transaction Records not processed and processed due to a Catastrophic Event. The process to record losses due to transactions disputed after it was assigned to an account will be done outside the system as part of the Toll Agency’s dispute approval and resolution process.

**Category 3:** If the event is under the control of the TCH.

The transfer and acceptance of Transaction Records shall be on a non-recourse basis.

The risk would be in the transactions processed and transferred on a non-recourse basis but not recovered from the Customers.

Since the event is because of a failure of a process under the control of the TCH, the risk and subsequent loss shall be for the TCH.

The TCH shall record and report on Transaction Records not recovered (i.e.: Transaction records accepted and transferred on a non-recourse basis but not assigned to a Customer Account).

**PS4.2.7.1** A Catastrophic Event on the side of the Toll Agency may result in (but not be limited to) the following conditions:

- a) Transactions not being sent by the Toll Agency in the specified time (addressed in TA Business Rule 106); or
- b) Validation lists not being updated by the Toll Agency in the specified time (the risk of the rejection of these transactions by the TCH remains with the Toll Agency).

**PS4.2.7.2** A Catastrophic Event on the side of the Transaction Clearing House may result in (but not be limited to) the following conditions:

- a) Transactions not being accepted by the TCH even though the Toll Agency attempted to send them in the specified time (addressed in TA Business Rule 106); or
- b) Validation lists not being available from the TCH at the specified intervals (addressed in TA Business Rule 112 and TCH Business Rule 204).

**PS4.2.7.3** The process to declare a Catastrophic Event and to trigger the special processing rules would include the following:

**1. If the Catastrophic event is on the side of the Toll Agency,**

- a) The Toll Agency needs to notify SANRAL, the IE, the ER and the TCH Operator of the Catastrophic Event. The notification should include a specification of the affected toll plaza, the period of the catastrophic event i.e., start date and time and end date and time. (The cause of the Catastrophic event should be provided as soon as it is known and will be required before the risk of the loss in income is determined.);
- b) The IE and the ER will make a recommendation and SANRAL will approve the application for the declaration of the Catastrophic Event and notify the TCH Operator and the Toll Agency that the event was approved.
- c) The TCH Operator will configure the system with the information to allow for acceptance of the transactions and notify the Toll Agency that transactions can be sent. Where possible, the period for transfer and acceptance of the Transaction Records from the Catastrophic Event will be configured to occur outside the period for transfer and acceptance of Transaction Records on a recourse basis to ensure that the validation rules for Transaction Records from the Catastrophic Event do not conflict with the general validation rules. If not possible to wait for the recourse period to pass, the processing and classification rules for a Catastrophic Event will take priority over the general validation rules;
- d) The TCH will attempt to process the Transaction Records.

**2. If the Catastrophic event is on the side of the TCH system,**

- a) The Toll Agency / Agencies will not be able to send Transaction Records and the status of the Transaction Records will remain "unsent" on the Toll Agency system;
- b) The TCH Operator need to notify SANRAL, the IE, the ER and the Toll Agency / Toll Agencies. (The cause of the Catastrophic event should be provided as soon as it is known and will be required before the risk of the loss in income is determined.)
- c) The ER will make a recommendation and SANRAL will approve the application for the declaration of the Catastrophic Event and notify the TCH Operator and the Toll Agency/ Toll Agencies that the event was approved.
- d) The TCH system error needs to be rectified and it will be communicated to the Toll Agency;
- e) After the TCH Catastrophic Event has been rectified, the TCH system will be configured for the Catastrophic Event. Depending on the requirement, the TCH will change the general validation rules, i.e.:
  - i. The time-period for transfer and acceptance of Transaction Records on a non-recourse basis; and/or
  - ii. The time-period for transfer and acceptance of Transaction Records on a recourse basis; and/or
  - iii. The time-period allowed for the update of the validation lists (Indicated in TA Business Rule 112).
- f) Where possible, the period for transfer and acceptance of the Transaction Records from the Catastrophic Event will be configured to occur outside the period for transfer and acceptance of Transaction Records on a recourse basis to ensure that the validation rules for Transaction Records from the Catastrophic Event do not conflict with the general validation rules. If not possible to wait for the recourse period to pass, the processing and classification rules for a Catastrophic Event will take priority over the general validation rules;
- g) The Toll Agency will be able to send the transactions to the TCH;
- h) The TCH will accept the transactions and process the transactions.

**PS4.2.7.4** The results of the processing of Transaction Records under the Catastrophic Event will be recorded and reported. The report will include the value (loss) of Transaction Records not assigned to valid accounts, but this value will not be the final loss;

**PS4.2.7.5** The final loss will include the risk of Customers not paying due to late processing (e.g. fleet banks or vehicle rental and lease companies “rejecting” transactions) or with Customers disputing the transactions during the period allowed for queries as specified in the Terms and Conditions. The final loss of transactions which were successfully processed (assigned to accounts) on TCH will only be quantifiable after payment received from the Customers and/or after transactions are queried by the Customers and credit notes are processed.

**PS4.2.7.6** The final loss will therefore be evaluated and determined outside of the system and included in a special “Catastrophic Event” report with the indication of the final loss and where such loss should reside and if necessary, what inter-entity invoicing is required. The compilation of the final report and the inter-entity invoicing shall be a manual process outside of the TCH system.

**PS4.2.7.7** With regards to the transfer and acceptance of Transaction Records from the Toll Agency to the Transaction Clearing House, the following rules will apply:”

This subclause to replace TA Business Rule 106 in subclause **PS4.2.6**

“TA Business Rule 106.

For the transfer and acceptance of Transaction Records from the Toll Agency to the Transaction Clearing House:

- a) For open road toll collection, the Transaction Records sent to the TCH after 24 hours after the date and time of the Chargeable Event that generated them shall not be accepted and processed unless approved as being included in a Catastrophic Event that prevented the Toll Agency from sending the transaction to the TCH. The TCH shall record and report on Transaction Records not processed and Transaction Records processed after expiry due to a Catastrophic Event.
- b) For conventional electronic toll collection, the Transaction Records sent to the TCH after 5 days after the date and time of the Chargeable Event that generated them and not linked to a card payment, shall not be accepted and processed unless approved as being included in a Catastrophic Event that prevented the Toll Agency from sending the transaction to the TCH. The TCH shall record and report on Transaction Records not processed and Transaction Records processed after expiry due to a Catastrophic Event.
- c) In the event that the TCH has a technical or communication error that prevents timeous transfer and acceptance of transactions from the Toll Agency, the Catastrophic event procedure will be followed and the TCH will process all transactions after the prescribed time when the TCH communication has been restored”.

The subclause 4.2.7 to be modified to read as follows:

**“PS4.2.8**

The 1<sup>st</sup> paragraph of this subclause to be modified to read as follows:

“Clause PS4.2.8 and TA Business Rule 107 is not applicable to the conventional electronic toll collection where ANPR (or similar technology) functionality is not implemented”.

The 1<sup>st</sup> line of the 2<sup>nd</sup> paragraph of this subclause to be modified to reads as follows:

“For Toll Agencies where ANPR or similar technologies is implemented, the Toll Agency must ensure that the Customer use the Tag in the registered vehicle as...”

Renumber all subclauses 4.2.7 to 4.2.8.

Subclause PS4.2.8 to be modified to read as follows:

**“PS4.2.9**

The 1<sup>st</sup> paragraph of this subclause 4.2.8 to be renumbered 4.2.9 and modified to read as follows:

“Clause PS4.2.9 and TA Business Rule 108 is not fully applicable at the conventional electronic toll collection where ANPR (or similar technology) functionality is not implemented.”

The 1<sup>st</sup> line of the 2<sup>nd</sup> paragraph of this subclause to be modified to reads as follows:

“For Toll Agencies where ANPR or similar technology is implemented, the Toll Agency must also ensure that the Evidential Record is sent with the Transaction ...”

Subclause PS4.2.9 to be modified to read as follows:

#### **“PS4.2.10**

The 1<sup>st</sup> paragraph of this subclause 4.2.9 to be renumbered 4.2.10 and be modified to read as follows:

“Clause PS4.2.10 and TA Business Rule 109 is not fully applicable to the conventional electronic toll collection where ANPR (or similar technology) functionality is not implemented. This subclause only applies to the picture required for a class discrepancy.”

### **PS4.4 Distribution of Validation Lists**

#### **PS4.4.3 TA Business Rule 112**

At the end of this subclause add the following:

“(c) In a Catastrophic Event where the TCH have a technical or communication error that prevents the timeous distribution of the validation lists, the TCH will update the time allowed for the update of the validation list from four (4) hours to the time-period determined by the length of the TCH Catastrophic Event.”

## **PS5 BUSINESS RULES FOR THE TCH**

### **PS5.1 Interface to the Toll Agency**

#### **PS5.1.1**

The 1<sup>st</sup> line of this subclause to be modified to read as follows:

“In formulating the rules for the Toll Agency and for the acceptance of transactions transferred on a non-recourse basis, it has been ...”

#### **PS5.1.3**

This subclause to be modified to read as follows:

“For the “Tag in a Bag”, initially the Tag will not be on the green or the red list since the Vehicle Licence Number and the vehicle class will be unknown. The ORT Toll Agency with the required ANPR equipment will add the Vehicle Licence Number and class in the transaction record when it is first detected. This will enable TCH to add an account with the additional information ...”

#### **PS5.1.4 TCH Business Rule 201**

The 4<sup>th</sup> line of the 5<sup>th</sup> paragraph of this subclause to be modified to read as follows:

“... responsibility in relation to its acceptance and payment for transactions transferred on a non-recourse basis for the period until the Green List is...”

#### **PS5.1.7**

The 2<sup>nd</sup> line of this subclause to be modified to read as follows:

“... Transaction Record meets the requirements for acceptance of transactions transferred on a non-recourse basis. It may also be ...”

## **PS5.2 Interface to Customer**

### **PS5.2.4 TCH Business Rule 220**

This subclause to be modified to read as follows:

“Transaction Records from Opt-in Toll Agencies or transactions transferred on a recourse basis from Opt-out Toll Agency may cause a general suspense account while the TCH seeks to obtain an account top-up from the customer. Transaction Records accepted from an Opt-out Toll Agency and transferred on a non-recourse basis and TCH fees will always be assigned to a pre-paid customer account and shall result in a temporary negative balance. The TCH shall seek to obtain an account top-up from the customer or recover the outstanding amount via the VPC by sending the outstanding balance for enforcement.”

## **PS5.3 Interface to VPC**

### **PS5.3.1**

The 1st paragraph of this subclause to be modified to read as follows:

“The business arrangements between the TCH and the VPC are primarily dictated by the payment based on the acceptance of transaction transferred on a non-recourse basis that is provided by the VPC. The appropriate Business Rules are:”

### **PS5.3.1 TCH Business Rule 238**

This subclause to be deleted and replaced with the following:

“TCH Business Rule 238. Not applicable.”

### **PS5.3.1 TCH Business Rule 239**

This subclause to be deleted and replaced with the following:

“TCH Business **Rule 239**. Not applicable.”

### **PS5.3.1 TCH Business Rule 240**

This subclause to be deleted and replaced with the following:

“TCH Business **Rule 240**. Not applicable.”

### **PS5.3.1 TCH Business Rule 241**

This subclause to be deleted and replaced with the following:

“TCH Business **Rule 241**. Not applicable.”

### **PS5.3.1 TCH Business Rule 242**

This subclause to be deleted and replaced with the following:

“TCH Business **Rule 242**. Not applicable.”



**PART C3.3: ENVIRONMENTAL MANAGEMENT PLAN (SECTION C)**

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## C1001 SCOPE

The South African National Roads Agency SOC Limited (SANRAL) recognises environmental management as a key component of road infrastructure development and as part of its Environmental Sustainability Framework has developed this Environmental Management Plan (EMP) as a tool for continual improvement in environmental performance.

This EMP prescribes the methods by which proper environmental controls are to be implemented by the Contractor for construction and maintenance projects. The duration over which the Contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the "Conditions of Contract for Design, Build and Operate Projects" (2008), published by the Fédération Internationale des Ingénieurs-Conseils, (FIDIC).

The provisions of this EMP are binding on the Contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract, particularly the conditions of any environmental authorisation and associated site-specific Environmental Management Programme (EMPr). In the event that any conflict occurs between the terms of the EMP and the project specifications or environmental authorisation, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any changes to the EMP and/or environmental authorisation cannot occur without being submitted to SANRAL who will manage the process of amending the EMP.

The EMP identifies the following:

- Relevant parties and their responsibilities;

- Construction activities that will impact on the environment;

- Specifications with which the Contractor shall comply in order to protect the environment from the identified impacts; and

- Actions that shall be taken in the event of non-compliance.

## C1002 DEFINITIONS

**Alien Vegetation:** undesirable plant growth which includes but is not limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA), 1983 and the National Environmental Management: Biodiversity Act (Act No. 10 of 2004). Other vegetation deemed to be alien are those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

**Construction Activity:** any action taken by the Contractor, his sub-contractors, suppliers or personnel during the construction process as defined in the contract documents.

**Environment:** the surroundings within which the contract exists and comprises land, water, atmosphere, micro-organisms, plant and animal life (including humans) in any part or combination thereof as well as any physical, chemical, aesthetic or cultural inter-relationship among and between them.

**Environmental Aspect:** any component of a contractor's construction activity that is likely to interact with the environment.

**Environmental authorisation:** a written statement from a Competent Authority, with the general and specific conditions and the EMPr recording its approval of an application for a planned undertaking that triggers listed activities in the Environmental Impact Assessment (EIA) regulations of the National Environmental Management Act (NEMA).

**Environmental Impact:** any change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

**Environmental Impact Assessment (EIA):** a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and scoping and environmental impact reporting.

**Environmental Management Plan:** An Environmental Management Plan (EMP) is an environmental management tool used to ensure that adverse impacts of the construction and operation and decommissioning of a project are prevented and/or minimised, and that the positive benefits are enhanced.

**Environmental Management Programme (EMPr):** A project-specific Environmental Management Plan approved by a competent authority through an environmental impact assessment process.

**Road Reserve:** a corridor of land, defined by co-ordinates and/or proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

**Site;** the site is defined in the FIDIC Conditions of Contract and in the scope of works. It is bound by the limits of construction as shown in the drawings or the title of the project and extends to also include the following:

- Areas outside the construction zones where accommodation of traffic is placed;
- All borrowpits defined in the applications approved by the Department of Mineral Resources (DMR);
- All haul roads constructed by the Contractor for purposes of access;
- Any non-adjacent sites specified in the contract documentation;
- The Contractor's and his subcontractors' camp sites.

For the purposes of this EMP, the site includes areas outside of, but adjacent to, the road reserve that may be affected by construction activities.

**Spoil material:** is material that is unsuitable for construction of the road pavement and for which no other useful purpose can be found in additional works on the project (e.g. for the provision of protection berms). Such material requires spoiling at convenient areas to be identified by the Engineer and/or Contractor within the Site. Spoil material does not require removal to a designated landfill site unless it contains identifiable hazardous contaminants.

## **C1003 LEGAL REQUIREMENTS**

### **General**

Construction shall be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the Contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the EMP are legally binding in terms of this contract. In the event that any rights and obligations contained in this EMP contradict those specified in the standard or project specifications then the latter shall prevail.

### **Statutory and other applicable legislation**

The Contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

Major environmental legislation, as amended from time to time, includes but is not limited to the following:

(i) Conservation of Agricultural Resources Act (Act No. 43 of 1983)

This act provides for control over the utilisation of the natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and vegetation, as well as combating weeds and invader plants.

(ii) The Constitution (Act 6 of 1996)

The Constitution states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected through reasonable legislative and other measures to prevent pollution and ecological degradation; promote conservation and ensure ecologically sustainable development and use of natural resources.

(iii) Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)

This act makes provision for equitable access to, and sustainable development of, minerals and petroleum resources.

(iv) National Environmental Management Act (NEMA), (Act No. 107 of 1998)

This act supports the Bill of Rights within the Constitution and highlights principles of sustainable development including preservation of ecosystems and biological diversity and avoidance, minimisation and remediation of pollution and environmental degradation. It also sets the stage for the EIA Regulations.

(v) National Environmental Management: Air Quality Act (Act No. 39 of 2004)

This act provides reasonable measures for the prevention of pollution and ecological degradation; and provides for specific air quality measures; for national norms and standards regulating air quality monitoring, management and control by all spheres of government.

(vi) National Environmental Management: Biodiversity Act (Act No. 10 of 2004)

This act makes provisions to accomplish the objectives of the United Nations' Convention on Biological Diversity. SANRAL may be required to apply for permits to conduct certain listed activities which, together with the listed threatened or protected species, may be identified by the Minister.

Section 73 (3) of this act empowers a competent authority to direct a person to take steps to remedy any harm to biodiversity resulting from the actions of that person or as a result of occurrence of listed invasive species occurring on land on which that person is the owner. Thus SANRAL may be directed to remedy harm caused by listed invasive species.

(vii) National Environmental Management: Protected Areas Act (Act No. 57 of 2003)

This act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity, natural landscapes and seascapes.

(viii) National Environmental Management: Waste Act (Act No. 59 of 2008)

This act aims to regulate waste management practices through provision of national norms and standards, specific waste measures, licensing and control of waste activities, remediation of contaminated land as well as providing for compliance and law enforcement.

(ix) National Forests Act (Act No. 84 of 1998)

This act makes provision for promoting the sustainable management and development of forests, and for the protection of certain forests and trees for environmental, economic, educational, recreational, cultural, health and spiritual purposes.

(x) National Heritage Resources Act (Act No. 25 of 1999)

This act provides for an integrated and interactive system for identification, assessment and management of South Africa's heritage resources, and empowers civil society to nurture and conserve their heritage resources.

(xi) National Water Act (Act No. 36 of 1998)

This act makes provision for the protection of surface water and groundwater and their sustainable management for the prevention and remediation of the effects of pollution, as well as for the management of emergency situations.

The South African National Roads Agency Limited and National Roads Act (Act No. 7 of 1998)

This Act makes provision for a National Roads Agency for the Republic to manage and control the Republic's national roads system and take charge, amongst others, of the development, maintenance and rehabilitation of national roads within the framework of government policy.

## **C1004 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS**

Copies of this EMP shall be kept at the site office and must be distributed to all senior contract personnel who shall familiarise themselves with its contents.

Implementation of this EMP requires the involvement of several stakeholders, each fulfilling a different but vital role as outlined herein, to ensure sound environmental management during the construction phase of a project.

**(a) SANRAL**

SANRAL and anyone acting on SANRAL's behalf is accountable for the potential environmental impacts of any activities that are undertaken and is responsible for managing these impacts.

**(b) The Engineer**

The Engineer has been appointed by, and acts for, SANRAL as its on-site implementing agent and carries the responsibility to ensure that the Contractor undertakes its construction activities in such a way that SANRAL's environmental responsibilities are not compromised.

The Engineer will, within seven days of receiving a contractor's request for approval of a nominated Designated Environmental Officer (DEO), approve, reject or call for more

information on the nomination. The Engineer will be responsible for issuing instructions to the DEO where environmental considerations call for action to be taken.

If in the opinion of the Engineer the DEO is not fulfilling his/her duties in terms of this EMP, the Engineer may, after discussion and agreement with SANRAL, exercise his powers under FIDIC general conditions of contract and instruct replacement of the DEO in writing and with stated reasons.

**(c) The Contractor**

The Contractor is responsible for project delivery in accordance with the prescribed specifications, among which this EMP shall be included.

The Contractor shall receive and implement any instruction issued by the Engineer relating to compliance with the EMP including the removal of personnel or equipment.

Compliance with the provisions contained herein or any condition imposed by the environmental approvals shall become the responsibility of the Contractor through an approved Designated Environmental Officer (DEO). The Contractor shall nominate a person from among his site personnel to fulfil this function and submit to the Engineer for his approval the curriculum vitae of the proposed DEO. This request for approval shall be given, in writing, at least fourteen days before the commencement of any construction activity clearly setting out reasons for the nomination, and with sufficient detail to enable the Engineer to make a decision.

**(d) The Designated/Dedicated Environmental Officer (DEO)**

Once a nominated representative of the Contractor has been approved, he/she shall become the DEO and shall be the responsible person for ensuring that the provisions of this EMP are complied with during the life of the contract. The DEO shall submit regular written reports to the Engineer, but not less frequently than once a month.

The DEO may undertake other construction duties unless Section B: Specification Data, prescribes this position as 'Full-time' or 'dedicated' as opposed to the standard position being 'designated'. However, the DEO's environmental duties shall hold primacy over other contractual duties and the Engineer has the authority to instruct the Contractor to reduce the DEO's other duties or to replace the DEO if, in the Engineer's opinion, he/she is not fulfilling his/her duties in terms of the requirements of this EMP. Such instruction will be in writing clearly setting out the reasons why a replacement is required.

As a minimum the DEO shall have an accredited National Qualifications Framework (NQF) level 6 qualification in environmental or natural sciences or equivalent and a minimum of 2 years' experience in a similar role in construction or other environmental regulatory field.

In addition to the compliance duties relating to EMP the DEO shall also provide full cooperation whenever the Contractor is subjected to environmental audits.

**(e) Environmental Control Officer (ECO)**

The Environmental Control Officer (ECO) is an independent environmental specialist appointed by SANRAL or the Engineer to objectively and regularly monitor the Contractor's compliance with the conditions of the authorisations issued for the project and the approved EMPr (that is this EMP augmented with specifics of the project). These are external audits and the regularity is determined by the environmental authorisations.

## **C1005 TRAINING**

**(a) Qualifications**

The (DEO) shall have the minimum qualifications as prescribed above and must be conversant with all legislation pertaining to the environment applicable to the contract. He/she must be appropriately trained in environmental management and possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The Contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees.

**(b) Content**

Apart from induction environmental training should, as a minimum, include the course content below and no induction or course should be given until the Engineer has been afforded the opportunity to appraise it and provide comment.

- i. The importance of conformance with all environmental policies and the consequences of departure from standard operating procedures;
- ii. Environmental impacts, actual or potential, caused by work activities, prevention measures to avoid them and mitigation measures when they occur;
- iii. Work force roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements;
- iv. The environmental benefits of improved personnel performance and
- v. Consequences of non-compliance

**(c) Induction**

In the case of permanent staff the Contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Contractor shall inform the Engineer when and how he intends concluding his environmental training obligations.

**C1006 ACTIVITIES/ASPECTS CAUSING IMPACTS**

Typical environmental aspects and impacts associated with road construction are listed in Table 1: Aspects and Impacts Associated with Road Construction. Actual impacts will differ from project to project and, therefore, so may the mitigation measures employed. The most common aspects and impacts are addressed separately, and typical avoidance and/or mitigation measures described. The list and descriptions are not by any means exhaustive, and they shall be used for guideline purposes only.

Table 1: Aspects and Impacts Associated with Road Construction

<b>Aspect</b>	<b>Potential Impact</b>
Waste generation/storage	Water pollution; nuisance; visual impact
Water use and stormwater discharge	Change in flow regime and/or reduction in downstream availability; soil erosion: water pollution
Vehicle use and maintenance	Air pollution; noise
Chemical/fuel storage	Water/air/soil pollution; health impacts; accidents e.g. spills, fire
Site clearing; earthworks; layer-works; seal works	Change in landform; impact on heritage resources; noise; soil erosion; air pollution
River bridges; installing drainage structures	Water pollution; impact on river flows; noise
Land acquisition	Loss of land and/or livelihood; change in land use;
Acquisition of building material from borrow pits	Change in landform and use

**(a) General approach**

The role of the DEO cannot be underestimated and once approved he/she shall be on the site at all times, and before the Contractor begins each construction activity, he/she shall give to the Engineer a written statement setting out the following:

- (i) The type of construction activity about to be started.
- (ii) Locality where the activity will take place.
- (iii) Identification of the environmental aspects and impacts that might result from the activity.
- (iv) The methodology of impact prevention for each activity or aspect.
- (v) The methodology of impact containment for each activity or aspect.
- (vi) Identification of the emergency/disaster potential for each activity (if any) and the reaction procedures necessary to mitigate impact severity.
- (vii) Treatment and continued maintenance of impacted environment.

The Contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified, and the activity planned so as to prevent any impact from happening and shall demonstrate that he is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce method statements for each construction activity in compliance with the provisions of these project specifications.

The Contractor shall provide such information in advance of any or all construction activities provided that new submissions shall be given to the Engineer whenever there is a change or variation to the original.

The Engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the Contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.



**(b) Spillages**

Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products. In the event of a spillage, the Contractor shall be liable to arrange for professional service providers to clear the affected area.

Responsibility for spill containment and treatment (whether hazardous or not) lies with the Contractor. The individual causing a spill, or who discovers a spill, must report the incident to his/her DEO or to the Engineer. The DEO will assess the situation in consultation with the Engineer and act as required. In all cases, the immediate response shall be to contain the spill. The exact treatment of polluted soil/water shall be determined by the Contractor in consultation with the DEO and the Engineer. Areas cleared of hazardous waste shall be re-vegetated according to the Engineer's instructions.

Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. The requirement for such input shall be agreed with the Engineer. The costs of containment and rehabilitation shall be for the Contractor's account, including the costs of specialist input as well as the sampling and testing of the water quality upstream and downstream of the spill. Water quality sampling and testing, and further treatment shall continue until upstream and downstream results correspond with each other.

**(c) Water use and control**

The Contractor's use of water shall take into consideration that it is a scarce commodity and shall be optimised. Authorisation shall be obtained from the Department of Water and Sanitation (DWS) before water is drawn from streams or new boreholes developed.

The Contractor shall also ensure that any stream deviations or diversions are undertaken in such a manner that the impact on the environment is minimised. Method statements shall be submitted to the Engineer for comment, detailing how the work will be undertaken, what risks are foreseen and what measures will be employed to minimise such risks. Notwithstanding any comments by the Engineer, no work on stream deviations or diversions shall be undertaken in accordance with GN 509 in GG 40229 of 26 August 2016 - General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 Of 1998) for Water Uses as defined in sections 21(c) and (i) .

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this development or expansion will affect the drainage pattern. Recognised water users/receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

Streams, rivers, pans, wetlands, dams, and their catchments shall be protected from erosion and flooding by dredging, daylighting, removal of debris and vegetation, etc. These shall also be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products.

The Contractor shall submit to the Engineer his proposals for prevention, containment and rehabilitation measures against environmental damage of the identified water and drainage systems that occur on the site. Consideration shall be given to the placement of sedimentation ponds or barriers where the soils are of a dispersive nature or where toxic fluids are used in the construction process. The sedimentation ponds must be large enough to contain runoff so that they function properly under heavy rain conditions up to 1:5year severity.

The Contractor shall submit to the Engineer the results of the baseline water quality test taken above and below the site of the proposed activity, and thereafter monthly testing results or at the frequency as may be specified by the Water Use Licence/General Authorisation, where

applicable. No taking-over can be authorised until the water quality is shown to be at pre-construction levels or better.

**(d)** Vegetation management

The Contractor shall be responsible for the management of vegetation by protection of indigenous vegetation, especially identified protected species, and the prevention of alien vegetation germinating in areas disturbed by road construction activities within and outside the road reserve. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for or from road construction has been stored temporarily. This responsibility shall continue for the duration of the defect's notification period. The project specification may instruct the removal of CARA and/or NEMBA-listed category 1 and 2 alien species and planting of specified indigenous species.

**(e)** Dust control

Dust caused by construction activities shall be controlled by appropriate means and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation. Vegetation cover should also be kept for as long as possible to reduce the area of exposed surfaces. Dust emissions from batching and screening plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant authorities.

**(f)** Noise control

The Contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance, for instance blasting and crushing activities, should only be carried out during the hours prescribed by the conditions of contract (i.e. normal hours). Should such noise generating activities have to occur at any time outside normal hours the people in the vicinity of the noise-generating activity shall be warned about the noise well in advance and the activities kept to a minimum. Relevant legislation shall also be taken into consideration, and any practical mitigation measures adopted. No noise generating activity outside of normal hours, regardless of its proximity to residences, can take place without application to the Engineer for approval. The application shall be accompanied by the noise containment measures proposed.

**(g)** Energy consumption

The Contractor shall take into consideration the impacts of high energy consumption, both from a cost and emissions point of view. Energy use shall be minimised, and where possible, alternative energy sources such as solar utilised.

Furthermore, the Contractor shall measure and keep records of the consumption of carbon units his chosen method of construction produces in the execution of his programme. In conjunction with the Engineer who will provide complete cooperation, a month-by-month output shall be compiled and efforts made to see how these outputs can be curtailed and reduced.

## C1007 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

The Contractor shall undertake “good housekeeping” practices during construction as stated in the COLTO Standard Specifications for Roads and Bridges and the FIDIC conditions of contract. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

The construction activities addressed below shall become part of the Contractor’s obligations regarding his programme of work and incorporated into the required method statements for workmanship and quality control.

### a) Site establishment

#### i) Site Plan

The site refers to an area with defined limits on which the project is located. The Contractor shall establish his construction camps, offices, workshops, staff accommodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before any site establishment can begin, the Contractor shall submit to the ECO for his comments and to the Engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste management facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course. No camp establishment, including satellite camps, can be placed within 150 metres of an identified watercourse unless the Contractor has applied to DWS and received authorisation to do so. Regardless of the chosen site, the Contractor’s intended mitigation measures shall be indicated on the plan. The site plan shall have been submitted and approved before establishment commences. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the ECO and the Engineer for consultation during rehabilitation of the site in order that rehabilitation is, as a minimum, done to a standard similar to pre-construction activities.

#### ii) Vegetation

The Contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the Engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the Engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous trees as were occurring shall be re-established. Protected trees may not be removed without a permit from the Department of Forestry, Fisheries and Environment.

Contravention of a notice of listed protected tree species under the National Forests Act, 1998 is regarded as a first category offence that may result in a fine or imprisonment for a period up to three years, or to both a fine and imprisonment. The DEO must be conversant with the latest gazette of declared protected trees.

Rehabilitation shall be undertaken using only indigenous tree, shrub and grass species. Special attention shall be given to any search and rescue operation identified during the environmental assessment process, and any removal to an on-site nursery for continuous nurturing and protection and later replanting.

Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding.

Fires shall only be allowed in facilities or equipment specially constructed for this purpose. The need for a firebreak shall be determined in consultation with the Engineer and the relevant authorities, and if required a firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

iii) Water management

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp/office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans, dams etc.). Only domestic type wastewater shall be allowed to enter this system.

iv) Heating and cooking fuel

The Contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

**b) Sewage management**

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of the Engineer, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a specialist service provider. The type of sewage management will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the Engineer. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system and shall be approved by the Engineer in consultation with the ECO.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer.

**c) Waste management**

The Contractor's intended methods for waste management shall be outlined and implemented at the outset of the contract and shall be to the satisfaction of the Engineer. A waste inventory shall be drawn up of all waste streams that will possibly be generated by the site/project and an integrated approach shall be taken to its management. Records shall be kept of all waste disposed. Opportunities for avoiding, reducing, reusing and recycling of materials should be identified upfront, as should constraints for their implementation. All personnel shall be instructed to dispose of all waste in the proper manner.

i) Solid waste

Solid waste shall be stored in an appointed area in covered, tip-proof metal drums or similar container for collection and disposal. Disposal of solid waste shall be at a licensed landfill site or at a site approved by the relevant authority in the event that an existing operating landfill site is not within reasonable distance from the project area. No waste shall be burned or buried at or near the project area.

ii) Litter

No littering by construction workers shall be allowed and particular emphasis on litter control measures shall apply at stop/go facilities.

During the construction period, the various contractors' facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter. At all places of work the Contractor shall provide litter collection facilities for later safe disposal at approved sites.

iii) Hazardous waste

Hazardous waste such as oils shall be disposed of at an approved landfill site and proof of such disposal kept by the Contractor. Special care shall be taken to avoid spillage of bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating surface water.

Under no circumstances shall the spoiling of bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected bituminous products shall be returned to the supplier's production plant. Any spillage of bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the Engineer.

iv) Construction and demolition waste

The opportunity for recycling and reuse of construction and demolition waste as fill for road embankments, land reclamation and drainage control must first be explored and take priority before the option of declaring these materials a 'waste'.

The Contractor is encouraged to actively engage with authorities and landowners adjacent to the site and identify where such materials can be usefully deployed to repair existing environmentally damaged areas such as erosion dongas.

**d) Control at the workshop**

The Contractor's management and maintenance of his plant and machinery will be monitored according to the criteria given below.

i) Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials such as bitumen binders shall be stored in a secured, appointed area that is suitably fenced, bunded and has restricted entry. Storage of bituminous products shall only take place using suitable containers to the approval of the ECO and the Engineer.

The Contractor shall provide proof to the Engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected, the Contractor shall furnish the Engineer with details of the preventative measures he proposes to install in order to mitigate pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bunded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

ii) Fuel and gas storage

The Contractor shall take cognisance of the limits set by legislation for the storage of fuels and acquire the necessary authorisation for storage capacity beyond these. An adequate

bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

Gas welding cylinders and LPG cylinders shall be stored chained in a secure, well-ventilated area exterior to any building wall.

iii) Oil and lubricant waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by a specialist oil recycling company.

Drip trays shall be used to collect any lubricants or fuel spilled where any vehicle and machinery are repaired or refuelled. The lubricants and fuel collected shall be handled as specified above.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

e) **Clearing the site**

In all areas where the Contractor intends to or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the Engineer for his approval. Working areas shall be clearly defined and demarcated on site to minimise the construction footprint. 'No-go-areas' and other sensitive areas shall also be clearly demarcated on site, and staff must be made aware of them.

The plan of action shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the Engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during inspections.

f) **Soil management**

i) Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include all storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved waste disposal site. The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water.

The Contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be top-soiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The Contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The Contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the Engineer. The Contractor's responsibility shall also extend to

the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

ii) Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the Engineer, and if not used for road building it shall be stored and maintained separately from the topsoil so that neither stockpile is contaminated by the other. This soil shall be used for rehabilitation purposes by first spreading it over the excavated slopes without interfering with or contaminating the stockpiled topsoil.

Whilst in stockpile it shall be maintained free from erosion and weed infestation in the same way as for topsoil stockpile maintenance.

**g) Earthworks and layerworks**

This section includes all construction activities that involve the mining of all materials, and their subsequent placement, stockpile, spoil, treatment or batching, for use in the permanent works, or temporary works in the case of deviations. Before any stripping prior to the commencement of construction, the Contractor shall have complied with the requirements of this EMP. In addition, the Contractor shall take cognisance of the requirements set out below.

i) Quarries and borrow pits

The Contractor's attention is drawn to the requirement of the Department of Mineral Resources, that before entry into any quarry or borrow pit, an Environmental Authorisation for the establishment, operation and closure of a quarry or borrow pit shall have been approved by the Department where applicable. It is the responsibility of the Contractor to ensure that he is in possession of the authorisation prior to entry into the quarry or borrow pit. The conditions imposed by the relevant authorisation are legally binding on the Contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific authorisation and this EMP, the former shall apply.

ii) Excavation, hauling and placement

The Contractor shall provide the ECO and the Engineer with detailed plans of his intended construction processes prior to starting any cut or fill or layer. The plans shall detail measures by which the impacts of pollution (noise, dust, litter, fuel, oil and sewage), erosion, vegetation destruction and deformation of landscape will be prevented, contained and rehabilitated. Particular attention shall also be given to the impact that such activities will have on the adjacent built environment. The Contractor shall demonstrate his "good housekeeping", particularly with respect to closure at the end of every day so that the site is left in a safe condition.

iii) Spoil sites

The Contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site he uses during the contract period, including the defects notification period. This shall include existing spoil sites that are being re-entered. Before spoil sites may be used proposals for their locality, intended method of operation, maintenance and rehabilitation shall be given to the ECO for his/her comments and to the Engineer for his approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the ECO and the Engineer. No spoil site shall be located within 50m of any watercourse. A photographic record shall be kept of all spoil sites for monitoring purposes. This includes before the site is used and after re-vegetation.

The use of approved spoil sites for the disposal of any waste shall be prohibited. Spoil sites will be shaped to fit the natural topography. Depending on availability these sites shall receive a minimum of 75mm topsoil and be grassed with the recommended seed mixture. Appropriate grassing measures to minimise soil erosion shall be undertaken by the Contractor. This may include both strip and full sodding. The Contractor may motivate to the Engineer for other acceptable stabilising methods. The Engineer may only approve a

completed spoil site at the end of the defect's notification period upon receipt from the Contractor of a landowner's clearance notice.

iv) Stockpiles

The Contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material shall be indicated and demarcated on the site plan submitted in writing to the Engineer for his approval. The Contractor's proposed measures for prevention of environmental damage, containment and subsequent rehabilitation shall also be submitted.

The areas chosen shall have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the Contractor shall at all times ensure that they are positioned and sloped to create the least visual impact, constructed and maintained so as to avoid erosion of the material and contamination of surrounding environment and kept free from all alien/undesirable vegetation.

After the stockpiled material has been removed, the site shall be re-instated to its original condition. No foreign material generated/deposited during construction shall remain on site. Areas affected by stockpiling shall be landscaped, top soiled, grassed and maintained at the Contractor's cost until clearance from the Engineer and the landowner is received.

Material milled from the existing road surface that is temporarily stockpiled in areas approved by the Engineer within the road reserve, shall be subject to the same condition as other stockpiled materials. Excess materials from windrows, in situ milling or any leftover material from road construction activities may not be swept off the road and left unless specifically instructed to do so in the contract documentation or under instruction from the Engineer.

The ECO shall comment on and the Engineer shall approve the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their closure only when they have been satisfactorily rehabilitated.

v) Blasting activities

Wherever blasting activity is required on the site (including quarries and/or borrow pits) the Contractor shall rigorously adhere to the relevant statutes and regulations that control the use of explosives.

**h) On site plant**

i) Crusher, screening plants and concrete batching plants

Crushing plants and concrete batching plants, whether sited inside or outside of defined quarry or borrow pit areas, shall be subject to the requirements of the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be the subject of regular inspections by the relevant authorities during the life of the project. In addition, the selection, entry onto, operation, maintenance, closure and rehabilitation of such sites shall be the same as for those under section C1007(g)(i) of this EMP, with the exception that the Contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard the Contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to drainage channels and settlement dams. Ultimate approval of these measures shall be from the relevant authority, as shall approval of closure. The Engineer will assist the Contractor in his applications to the relevant authority.

Screening activities shall be undertaken so that dust and noise is minimised. This can be done by carefully choosing the site for the activity, and by using slightly damp material.

Effluent from concrete batch plants and crusher plants shall be reused where possible or treated in a suitable designated sedimentation dam to the legally required standards to



prevent surface and groundwater pollution. The designs of such a facility should be submitted to the Engineer for approval.

ii) Asphalt Plant

Asphalt plants shall be subject to the applicable legislation that governs establishment and operation of batching plants. The Contractor shall be responsible to obtain the necessary permit from the relevant authority.

Operation of the plant shall conform to the same requirements as for a crushing plant or concrete batching plant under C1007(h)(i) above.

## **C1008 AREAS OF SPECIFIC IMPORTANCE**

Any area, as determined and identified within the project documents as sensitive or of special interest within the site shall be treated according to the express instructions contained in these specifications or the specific environmental authorisation, as well as the approved EMP. The Contractor may offer alternative solutions to the Engineer in writing should he consider that construction will be affected in any way by the hindrance of the designated sensitive area or feature. However, the overriding principle is that such defined areas requiring protection should not be changed. Every effort to identify such areas within the site will have been made prior to the project going out to tender. The discovery of other sites with archaeological or historical interest that have not been identified shall receive ad hoc treatment.

During the design stage it is incumbent on the design engineer to undertake research in order to identify such areas of special importance, and where identified, they shall be given prominence in this section of the project specifications. Particularly the services of the South African Heritage Resource Agency (SAHRA) and the provincial equivalent authority, if any, shall be sought when research is undertaken.

a) Archaeological sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Engineer of such discovery. The South African Heritage Resource Agency (SAHRA) is to be contacted, and a SAHRA-registered archaeological consultant may undertake the necessary work involved in confirming the find and advising on how it should be preserved or removed. Work may only resume once clearance is given in writing by the archaeologist. (Read with FIDIC condition of contract clause 4.24)

If a grave or midden is uncovered on site then all work in the immediate vicinity of the graves/middens shall be stopped, and the Engineer informed of the discovery. The South African Heritage Resource Agency and the South African Police Services (SAPS) should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with SAHRA, be responsible for attempts to contact family of the deceased and for the place where the exhumed remains can be re-interred.

## **C1009 REHABILITATION**

The Contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, construction has to be stored temporarily, and designated or instructed areas outside the road reserve. It also includes the area where site offices were erected which may require rehabilitation at the end of the contract. All construction material, including concrete slabs and barbecue (braai) areas shall be removed from the site on completion of the contract unless written approval from the relevant landowner demonstrates it is to be left in place.

Responsibility for re-establishment of vegetation shall extend until expiry of the defect's notification period. However, SANRAL reserves the right to continue holding retention monies (or

not releasing guarantees in lieu of retention) depending upon the state of cover at the end of the defect's notification period. Such extension may continue until closure of the relevant quarry or borrow pit has been secured,

Rehabilitation of affected areas should be undertaken as early as possible when the relevant activities are done in order to reduce further environmental damage. All re-vegetation should be undertaken using indigenous vegetation. The standard of rehabilitation should be to the satisfaction of the Engineer and the relevant authorities. The Department of Minerals Resources will only issue closure certificates for borrow pits and quarries when they are satisfied with the rehabilitation undertaken. It should also be noted that in some cases there is a requirement for a final environmental audit covering the extent of the project.

#### **C1010 RECORD KEEPING**

The Engineer and the DEO will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the DEO shall submit regular written reports to the ECO and to the Engineer at least once a month. The DEO will report the environmental compliance performance of the project at regular site meeting. The Engineer shall issue to the Contractor a notice of non-compliance whenever transgressions are observed. The DEO shall document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the Engineer in the monthly report.

Copies of all authorisations shall be kept on site and made available for inspection by visiting officials from SANRAL, relevant authorities or internal/external auditors.

#### **C1011 COMPLIANCE AND PENALTIES**

The Contractor shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and an oral report given at the monthly site meetings.

Any non-compliance/omissions with the procedures in this EMP, environmental authorisations and the approved EMPr constitute a breach of the Conditions of Contract. Regulatory financial penalties imposed on SANRAL shall be passed onto the defaulting parties.

## **C1012 PROJECT SPECIFIC CONDITIONS**

### **C3.3.12.1 Identification of Environmental Aspects and Impacts**

The contractor shall identify likely aspects before commencing with any construction activity. Examples of environmental aspects include:

- a) waste generation
- b) stormwater discharge
- c) emission of pollutants into the atmosphere
- d) chemical use operations;
- e) energy use operations;
- f) water use operations; and
- g) use of natural resources.

Thereafter, the contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor shall provide plans and measures for the engineer's approval, which will limit and contain the magnitude, duration and intensity of the impact. The contractor shall demonstrate that he is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce an approved construction programme according to the General Conditions of Contract and the Scope of Work.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

- a) pollution of atmosphere, soil or water;
- b) destruction or removal of fauna and flora and effect on biological diversity;
- c) deformation of the landscape;
- d) soil erosion;
- e) destruction of historical/heritage sites;
- f) effect on the built environment; and
- g) effect on agricultural land and wetlands.

General good construction practice will play an important role in avoiding the occurrence of an Impact. The contractor's attention is drawn, in this regard, to Clause C3.3.7 Environmental Management of Construction Activities.

### **C3.3.12.2 MEASUREMENT AND PAYMENT**

The contractor shall not be separately reimbursed or compensated in respect of his compliance with the provisions of this Section C3.3 of the Scope of Work. All costs incurred in this regard shall, be considered to be included in the rates tendered for the various items of work listed in the Schedule of Rates/Cost of Matrix.

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**PART E: REQUIREMENTS OF THE  
OCCUPATIONAL HEALTH AND SAFETY  
ACT AND REGULATIONS (SECTION E)**

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**PART C3.5: REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS (SECTION E)**

**Note to tenderer:**

**Wherever reference is made in this section of the Scope of Works to contractor this is the equivalent of the *principal contractor* in the Occupational Health and Safety Act and Regulations. Similarly, reference to subcontractors is equivalent to *other contractors*.**

**For the purposes of the Nominated Subcontract references to SANRAL as the Employer shall be read as reference to the Main Contractor as the Employer. Note that there are other cases where reference to SANRAL remains as is – for example when reference is made to SANRAL specifications or other requirements.**

**PART C3.5: REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS (SECTION E)**

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## E1001 SCOPE

The Occupational Health and Safety Act, Act 85 of 1993 (OHS Act) and its Regulations together with SANS Codes set out minimum standards with regards to Occupational Health and Safety. The South African National Roads Agency SOC Limited (SANRAL), has developed this Occupational Health and Safety Specifications with these minimum standards in mind and in certain aspects the requirements of SANRAL exceeds the minimum legal requirements to follow best practices and to ensure a healthy and safe workplace for all.

SANRAL in no way assumes The Principal Contractors legal liabilities and responsibilities. The Principal Contractor is and remains accountable for the quality and execution of his health and safety program for his employees. This Health and Safety Specification reflects minimum legal and SANRAL requirements and should not be construed as all encompassing.

It is realized that The Principal Contractor have its own Health and Safety Management system and safe work practices. The intention of this Health and Safety Specification is not to change The Principal Contractors Health and Safety management system, but for The Principal Contractor to use its current Health and Safety management system to draw up a project specific Health and Safety plan according to these specifications as well as to legally comply with the any applicable Regulations under the OHS Act and incorporated Standards.

It is the responsibility of the Principal Contractor and other Contractors to make themselves conversant and comply with the requirements and conditions contained in the various legislation pertaining to their profession and scope of works at all times.

This specification is not exhaustive of all duties imposed by the OHS Act and its Regulations, governing the duties and obligations, of a Designer, Principal Contractor and Contractor performing duties in terms of an agreement with the client (SANRAL). These duties are fully described in the OHS Act and its Regulations and it is the duty of every Designer, Principal Contractor and Contractor to acquaint themselves therewith before commencing work.

This specification is compiled to ensure that the Principal Contractor and any other Contractors working for SANRAL directly or through a Principal Contractor, are aware of the Occupational Health and Safety requirements when working on a SANRAL contract, as well as to make them aware of their legal liabilities and responsibilities as per the Occupational Health & Safety Act, Act 85 of 1993, and its Regulations.

Words used herein in the singular shall be deemed to include the plural and male shall include female and vice versa unless the context otherwise requires.

## E1002 DEFINITIONS AND ABBREVIATIONS

**Assessment** – An opinion or a judgment about someone or something that has been thought about very carefully.

**At-risk behavior** – Conduct that unnecessarily increases the likelihood of an injury or incident.

**Audit** – A systematic and documented review of the effectiveness of implementation of processes, programs and procedures, based on general process criteria.

**Baseline risk assessment** – This is the initial assessment of risk in a workplace. It is a broad assessment and includes all activities taking place on site but does not include risk control measures or safeguards.

**Client** – Any organization or person for whom construction work is performed. For the purpose of this document, the client is the South African National Roads Agency SOC Limited, also identified in the contract document as the Employer.

**Competence** – A combination of attributes such as knowledge, training, experience and qualifications to assure successful performance.

**Competent Person** – Means a person who has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No. 67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and is familiar with the Act and with the applicable regulations made under the Act.

**Consequence** – Outcome or impact of an event.

**Continual Improvement** – A recurring process of enhancing performance to achieve consistent improvements in overall performance.

**Contractor** – An employer as defined in section 1 of the OHS Act, who performs construction work and includes Principal Contractors and Sub-Contractors.

**Construction Work** – any work in connection with:

- The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work.

**Corrective Action** – An action taken to eliminate the cause of a detected non-conformity or other undesirable situation.

**Construction Regulations (CR)** – Construction Regulations, GNR. 84 of 2014

**Critical equipment** – A piece of equipment or a structure whose failure to perform to design specification, has the potential to result in a major accident event.

**Design** – in relation to any structure, includes drawings, calculations, design details and specifications.

**Designer** –

- a) competent person who:
  - Prepares a design;
  - Checks and approves a design;
  - Arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
  - Designs temporary work, including its components;
- b) an architect or engineer contributing to, or having overall responsibility for a design;
- c) a building services engineer designing details for fixed plant;
- d) a surveyor specifying articles or drawing up specifications;
- e) a contractor carrying out design work as part of a design and building project; or
- f) an interior designer, shop fitter or landscape architect.

**DMR** – Driven Machinery Regulations, GNR. 295 of 26 February 1988

**Documents** – Structured units of recorded information and its supporting medium (paper or electronic). Most records are documents, but not all documents are records. A document becomes a record when it is part of a business transaction, is kept as evidence of that transaction and is managed within a record-keeping system.

**EIR** – Electrical Installation Regulations, GNR. 242 of 6 March 2009

**Emergency** – An abnormal occurrence that pose a threat to the safety or health of employees, customers, or local communities, or which can cause damage to assets or the environment.

**Employee** – An individual who is employed by or works for an Employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person.

**Employer** – Any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerates him but excludes a labour broker as defined in section 1(1) of the Labour Relations Act, 1956 (Act No. 28 of 1956). The South African National Roads Agency SOC Limited, also identified in the contract document as the Employer.

**EMR** – Electrical Machinery Regulations, GNR. 250 of 25 March 2011

**Environment** – The surroundings or conditions in which a person, animal or plant lives or operates, including air, water, land, natural resources and habitats.

**Epidemic Disease** - An *epidemic* disease is one affecting many persons at the same time and spreading from person to person in a locality where the disease is not permanently prevalent. The World Health Organization (WHO) further specifies *epidemic* as occurring at the level of a region or community.

**Excavation work** – The making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping.

**GAR** – General Administrative Regulations, GNR. 929 of 25 June 2003

**GMR** – General Machinery Regulations, GNR. 1521 of 5 August 1988

**GSR** – General Safety Regulations, GNR. 1031 of 30 May 1986



**Harm** – A significant and or long-lasting adverse effect on people, the environment or the community.

**Hazard** – A source, situation or act with a potential for harm in terms of human injury or ill health.

**Health and Safety File** – Means a file, or other record in permanent form, containing the information in writing as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 7(1)(b).

**Health and Safety Plan** – Means a project specific documented plan in accordance with the client's health and safety specifications, as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 7(1)(a).

**Health and Safety Specification** – Means a project specific document prepared by the client pertaining to all health and safety requirements related to construction work, as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 5(1)(b).

**HSE** – Health, Safety and Environment. Commonly used in the format HSE.

**Incident** – Work-related events (including accidents which give rise to injury, ill health, fatality or emergencies) that have resulted in, or has the potential to result in adverse consequences to people, the environment, property, reputation or a combination of these.

**Likelihood** – A description of probability or frequency, in relation to the chance that something will occur.

**Lost Time Injury (LTI)** – When a person is injured during the execution of his/her duties and as a result of the injury is unable to perform his/her regular duties for one full shift or more on the day following the day on which the injury has incurred, whether a scheduled workday or not(weekend).

**Management System** – Management processes and documentation that collectively provide a systematic framework for ensuring that tasks are performed safely, correctly, consistently and effectively to achieve a specified outcome and to drive continual improvement in performance.

**Mandatory** – An agent, contractor or sub-contractor for work, but without derogating from his status in his own right as an employer or a user.

**MSDS** – Material Safety Data Sheet

**Near Hit / Near Miss** – Any occurrence or situation which had the potential for adverse consequences to people, the environment, property, reputation or a combination of these.

**Non-conformance** – Any deviation from work standards, practices, procedures, regulations that could either directly or indirectly lead to injury or illness, property damage, damage to the environment or a combination of these.

**OHS Act** – Occupational Health & Safety Act, 85 of 1993

**Pandemic Disease** - a *pandemic* disease is an *epidemic* disease that has spread over a large area, that is, it is prevalent throughout an entire country, continent, or the whole world.

**Policy** – Statement by an organization of its intentions and principles in relation to its overall performance which provides a framework for action and for the setting of its objectives and targets.

**PPE** – Personal Protective Equipment

**Preventive Action** – An action implemented to eliminate the cause of a potential non-conformity or other undesirable potential situation.

**Principal Contractor** – An employer appointed by the client to perform construction work and who is in overall control and management of a part of or the whole construction site.

**Procedure** – A specific documented way to carry out an activity or a process.

**Records** – Recorded information, in any form that is kept as evidence. Records include monitoring results, evidence of training, audits, inspections and calibration reports.

**Risk Assessment** – A process of evaluating the risk(s) arising from hazards taking into account the adequacy of any existing controls and deciding whether or not the risk(s) is acceptable.

**Risk Management** – The ongoing treatment of risks through the application of management policies, processes, procedures and risk control measures.

**Risk** – A combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by the event or exposure.

**Root Cause** – The cause of the incident that, when rectified, will prevent the recurrence of not just incidents with those exact circumstances, but others with similar causes.

**SACPCMP** – South African Council for Project and Construction Management Professions

**SANRAL** - South African National Roads Agency SOC Limited

**Supplier** – A person or company that supplies material or equipment to a contractor on a construction site but does not physically carry out construction work on the construction site.

**The Act** – The Occupational Health and Safety Act No. 85 of 1993

**The Site** – The area where work is carried out for SANRAL as defined on the front page of this document.

**WAH** – Acronym for Working at Heights.

### **E1003 HEALTH AND SAFETY POLICY**

Contractors are expected to have their own written Health and Safety Policy. The policy should declare their attitude and approach to the health, safety and welfare of their employees and others. The policy should include a description of the company and provision must be made to review the policy annually and the CEO or Managing Director must sign and date the policy to indicate his commitment to ensuring the health and safety of his employees, as per Section 7 of the OHS Act.

### **E1004 ROLES AND RESPONSIBILITIES**

Every Contractor is considered to be an employer in his own right and shall comply with all legal requirements pertaining to an employer, which include the responsibility to provide as far as reasonably practicable a safe and healthy working environment for his employees, as per Section 8 of the OHS Act.

In conjunction with Section 8 of the OHS Act, all employees on the project are responsible for their own health and safety as well as the safety of persons who may be affected by their acts, as per Section 14 of the OHS Act. It is the responsibility of each employee to ensure that he acts in a safe manner before and during work is carried out.

The Principal Contractor shall ensure that where required by the OHS Act and Regulations, competent employees are appointed in writing. These appointments must be project/contract specific and specific to the tasks that will be performed. Every appointment must display the duties of the person appointed and training certificates from a registered training provider must be attached to such appointment (where applicable). A list of possible appointments can be found in clause E1010 below.

### **E1005 HSE TRAINING AND COMPETENCE**

Where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2000 (Act No. 67 of 2000), those qualifications and training must be regarded as the required qualifications and training and employees must have attended courses of the aforementioned nature to be considered competent in the task.

All employees that form part of the construction work must be trained and competent. Employees formally appointed to perform a certain duty must be in possession of a training certificate (where applicable), received from a registered training provider. All employees must as a minimum have received site specific safety induction training and must receive daily safe task instruction training (DSTI) before any work commences and thereafter on a daily basis.

#### a) Training Needs

There shall be a system in place to determine the training requirements of each individual, based on the tasks that the employee will perform as well as to ensure the health and safety of fellow employees and the public. Special attention should be given to employees who are new hires, new to the task or have combined responsibilities.

b) Basic Safe Work Training (Induction Training)

Every contractor shall ensure that his employees are inducted into his own company Health and Safety System as well as basic safe work training (HSE Induction Training). The Principal Contractor shall ensure that his, all his Contractor's employees and visitors are inducted on the specific site safety procedures.

A Daily Safe Task Instruction (DSTI) must be conducted on site with all employees involved in the project. The DSTI must be carried out each day before work commences and proof thereof must be available on site. Each work crew may conduct their own specific DSTI to discuss the hazards, risks and control measures associated with their task for the day.

Where two or more contractors or work crews work in the same area, they should have a combined DSTI to ensure they know of the additional hazards the other contractor or work crew will introduce to their operations and what precautions to put in place.

The Principal Contractor shall have evidence that employees have been trained on the relevant procedures prior to and during the project duration. The evidence will be in a form of attendance register.

c) Formal Training

All qualifications for which there are SAQA registered training courses, must be regarded as the minimum required qualifications and training. To be deemed "competent" an employee must have received training at a registered training provider, the training course must be registered and if there is an assessment, the employee must have been found competent after the assessment. A person cannot be deemed competent after awareness training only.

The Principal Contractor shall ensure that his employees, as well as the employees of any contractors that may be used, have received appropriate training for the type of work that will be performed, e.g. First Aid, Flag Man, Mobile Plant Operator, Working at Heights, Risk Assessment training etc.

d) Records

Record of all training shall be kept by the employer and shall be readily available. Records shall make provision for refresher training where applicable. Where an employee is legally appointed with certain duties and responsibilities a copy of the training certificate must be attached to the appointment.

## **E1006 APPLICATION FOR CONSTRUCTION WORK PERMIT**

Construction Regulation, 2014 Section 3 requires that the client apply for a construction work permit at least 30 days before construction work is started, if the intended construction work will:

- *exceed 365 days AND will involve more than 3 600 person days of construction work; or*
- *if the tender value limit is a CIDB grade 7, 8 or 9.*

If approved, the provincial director will issue a construction work permit in writing to perform construction work within 30 days of receiving the application and assign a site-specific number for the construction site. It is the intention of SANRAL to apply for a construction work permit as soon as The Principal Contractor is appointed and his Health and Safety Plan is received, in order to minimize construction delays.

The site-specific construction work permit number must be displayed at the main entrance to the site and a copy of the construction work permit must be kept in the principal contractor's health and safety file for inspection purposes.

## **E1007 DUTIES**

Various duties are imposed on the client, designer, principal contractor and other contractors by the Construction Regulation, 2014, Sections 5, 6 & 7. SANRAL will comply and carry out the required duties as contemplated in Section 5 of the Construction Regulations, 2014 and it is expected from the designer and

every contractor to make themselves conversant with the requirements and duties imposed on them and to ensure that they comply with the requirements of section 6 & 7 at all times.

## **E1008 MANAGEMENT AND SUPERVISION**

The Principal Contractor shall ensure that the project is managed safely, and legal compliance is ensured at all times.

A full-time competent person must be appointed as a Construction Manager to manage all construction work, including health and safety compliance. The construction manager may not be appointed to manage more than one single construction site. An Alternate Construction Manager must be appointed, to carry out the duties in the absence of the Construction Manager.

The construction manager must appoint construction supervisors responsible for construction activities and ensuring occupation health and safety on the construction site.

The Principal Contractor must appoint a full-time construction health and safety officer, who is registered with the SACPCMP, to assist in the control of health and safety aspects on site.

## **E1009 RISK MANAGEMENT**

The Principal Contractor must follow a formal risk-based approach to ensure hazard control measures are implemented to an acceptable reasonable practical level. The Principal Contractor and his employees shall be responsible to ensure all hazards pertaining to his scope of activity are proactively identified, the risks assessed and appropriately eliminated or minimized and managed on an ongoing basis. Risk assessments shall also identify possible and potential environmental, health and hygiene issues pertaining to each hazard with potential exposures and limits.

### **a) Risk Assessment**

#### **i) Hazard Identification and Risk Assessment (Construction Regulation 9)**

The Principal Contractor shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, conduct a risk assessment by a competent person, appointed in writing and the risk assessment so produced shall form part of the OH&S plan and be implemented and maintained as contemplated in Construction Regulation 9(1). Competence is a factor of training, knowledge, experience and/or appropriate qualifications.

The risk assessment shall include, as far as is reasonably practicable, at least:

- *The task or task step*
- *the identification hazards to which persons may be exposed to during the task or task step;*
- *The analysis and evaluation of the risks associated to the hazards identified, inclusive of a residual risk rating methodology. The method to be used is not prescribed;*
- *a documented plan of safe work procedures, to mitigate, reduce or control those residual risks that have been identified as unacceptably high, by means of the rating system;*
- *a monitoring plan;*
- *a review plan, inclusive of dates to be adhered to; and*
- *Ergonomic related risks are to be analysed, evaluated and addressed as part of the process.*

Based on the risk assessments, The Principal Contractor shall develop a set of site-specific OH&S rules that shall be applied to regulate the OH&S aspects of the construction. The risk assessments, together with the site-specific OH&S rules shall be submitted to the Employer before construction on site commences. SANRAL has conducted a Baseline Risk Assessment as per clause E1009 (b) below, which must be used by The Principal Contractor to develop task specific risk assessments before work commences. This does not mean that all possible Risk

Assessments must be attended to before work commences, but that all relevant Risk Assessments receive the necessary attention as the contract progresses, and this is the responsibility of The Principal Contractor.

All variations to the scope of work shall similarly be subjected to a risk assessment process.

ii) Risk Assessment Monitoring

The Principal Contractor shall ensure that a monitoring plan for all risk assessments are in place. Risk assessments must be monitored to ensure effectiveness and employee understanding. The monitoring of risk assessments shall be formal, and records thereof shall be available for audit purposes.

iii) Review of Risk Assessment

The Principal Contractor shall review the hazard identification, risk assessments and standard safe working procedures:

- prior to any work activity commencement,
- where changes are affected to the design and construction that result in a change to the risk profile,
- when an incident has occurred, or
- at least quarterly.

The Principal Contractor shall provide the Employer, sub-contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated above.

Activities carried out without conducting a risk assessment or found to be non-compliant with the risk assessment, will be stopped until such time a risk assessment is compiled, and work is carried out according to the risk assessment.

Risk assessments must be fully communicated to all relevant personnel and must be considered when establishing training, awareness and competency requirements. Records of risk assessment communications must be kept for inspection purposes.

b) **Baseline Risk Assessment**

SANRAL prepared a Baseline Risk Assessment from which the Health and Safety Specifications for this project was prepared. The Baseline Risk Assessment highlights all work for which The Principal Contractor must prepare safe work procedures and or work method statements. It must be noted that the Baseline Risk Assessment is not exhaustive and Principal Contractors are required to identify risks and come up with control measures, this must be identified by Principal Contractor when preparing the Issue Based Risk Assessments.

The Baseline Risk Assessment for this Project can be found in clause E1018.

c) **Continuous Risk Assessment**

The Principal Contractor shall continuously assess the risks of the activities that are carried out. Risk assessments must be in writing, site specific and must be reviewed continuously as per E1009 a(iii) to ensure it is current and it address all the relevant hazards and risks associated with the specific activity at the specific site.

The Risk assessment must be discussed with the whole work crew before the activity starts and the work crew must acknowledge in writing having discussed the risk assessment and that they understand it. This acknowledgement must be on site and must be available to the client for audit purposes.

## **E1010 LEGAL COMPLIANCE AND DOCUMENT CONTROL**

The Principal Contractor is required to implement systems and procedures to ensure legal compliance through:

- *Identification of all relevant HSE legislation, standards and codes applicable to its operations.*
- *Have available copies of all relevant HSE legislation, standards and codes for reference purposes.*

- *Update systems and procedures with changed/updated legislation, standards and codes.*
- *Communicate to all employees any changes that may affect their accountabilities and conformances.*
- *Incorporate any legal requirements into their HSE management system.*
- *Monitor and review their HSE management system for effectiveness.*

The Principal Contractor shall, as a minimum, comply with:

- *The Occupational Health and Safety Act and Regulations (Act 85 of 1993), an up-to-date copy of which shall be available on site at all times.*
- *The Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993), an up-to-date copy of which shall be available on site at all times.*
- *Where work is being carried out on a quarry/borrow pit/"mine", The Principal Contractor shall comply with the Mines Health and Safety Act and Regulations (Act 29 of 1960) and any other OH&S requirements that the mine may specify. An up-to-date copy of the Mines Health and Safety Act and Regulations shall be available on site at all times.*

Wherever in the Construction Regulations or this specification there is reference to other regulations (e.g. Construction Regulation 24: Electrical Installations and Machinery on Construction Sites) The Principal Contractor shall be conversant with and shall comply with these regulations.

All legal appointments of The Principal Contractor regarding the Health and Safety of his employees who are to work on the project are addressed and governed by the OHS Act and applicable Regulations. Legal appointments must be in place and must reflect in the project safety file before work commences.

**a) Overall Supervision and Responsibility for OH&S**

SANRAL will appoint the Principal Contractor in terms of Construction Regulation 5(1)(k). A Mandatory agreement as per Section 37.2 of the OHS Act, shall be signed between SANRAL and the Principal Contractor.

It is a requirement that the Principal Contractor, when he appoints other contractors in terms of Construction Regulations 7(1)(c), 7(1)(d), 7(1)(f) and 7(3) includes in his agreement with such Contractors the following:

- *OH&S Act (85 of 1993), Section 37(2) agreement: "Agreement with Mandatory".*
- *OH&S Act (85 of 1993), Section 16(2) appointee(s) as detailed in his/her/their respective appointment forms. (Where applicable).*

The signed Mandatory agreements shall be placed in the project file for reference and for audit trail purposes.

**b) Specific Supervision Responsibilities for OH&S**

The Principal Contractor shall appoint designated competent employees and/or other competent persons as required by the OHS Act and Regulations, as well as this specification. Appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information shall be communicated to and agreed with the appointees. Where applicable, the training certificate must be attached to the appointment. Notice of appointments shall be submitted to the Employer. All changes shall also be communicated to the Employer.

Below is a list of possible appointments for the project, which is not an all-inclusive list, but for reference purposes only:

<b>Appointment</b>	<b>Legal Reference</b>
Assistant to CEO	OHS Act 16(2)
Health and Safety Representative	OHS Act 17(1)
Nominated Health and Safety Committee Member	OHS Act 19(3)
Contractor (Sub-contractor)	CR 7(1)(c)(v)

<b>Appointment</b>	<b>Legal Reference</b>
Construction Manager	CR 8(1)
Alternate Construction Manager	CR 8(1)
Assistant Construction Manager	CR 8(2)
Health and Safety Officer	CR 8(5)
Construction Supervisor	CR 8(7)
Assistant Construction Supervisor	CR 8(8)
Risk Assessor	CR 9(1)
Fall Protection Plan Developer	CR 10(1)(a)
Structure Inspector	CR 11(2)(a)
Temporary Works Designer	CR 12(1)
Temporary Works Supervisor	CR 12(2)
Excavation Supervisor	CR 13(1)(a)
Demolition Supervisor	CR 14(1)
Competent Person in the use of Explosives	CR 14(11)
Scaffold Supervisor	CR 16(1)
Suspended Platform Supervisor	CR 17(1)
Rope Access Supervisor	CR 18(1)(a)
Material Hoist Inspector	CR 19(8)(a)
Bulk Mixing Plant Supervisor	CR 20(1)
Explosive actuated fastening device Inspector	CR 21(2)(b)
Explosive actuated fastening device cartridge Controller	CR 21(2)(g)(i)
Construction Vehicle & Mobile Plant Operator Authorised	CR 23(1)(d)(i)
Temporary Electrical Installation Controller	CR 24(c )
Stacking and Storage Supervisor	CR 28(a)
Fire Equipment Inspector	CR 29(h)
Incident investigator	GAR 9(2)
Lifting tackle inspector	DMR 18(10)(e)
Ladder inspector	GSR 13(a)
Certified Explosives Manager	ER 12(1)
First Aider GSR	GSR 3(4)
Lifting machine Operator	DMR 18(11)

In addition to the above, the Employer requires that a Traffic Safety Officer be appointed.

It is a requirement that The Principal Contractor shall provide the Employer with an organogram of all sub-contractors that he/she has appointed or intends to appoint and keep this list updated and prominently displayed on site.

**c) Designation of OH&S Representatives (Section 17 of the OH&S Act)**

Where the Principal Contractor employs more than 20 persons (including the employees of sub-contractors) he has to appoint 1 (one) OH&S representative for every 50 employees or part thereof. This is a minimum (legal) requirement. The Principal Contractor may at his own discretion appoint more OH&S representatives according to site specific requirements. General Administrative Regulation 6 requires that the appointment or election of the OH&S representatives be conducted in consultation with employee representatives or employees (Section 17 of the Act and General Administrative Regulation 6 & 7). OH&S representatives shall be designated in writing and the designation shall include the area of responsibility of the person and term of the designation. OH&S representatives must be experienced, permanently employed by The Principal Contractor or his sub-contractors, trained and able to move freely within their designated area of responsibility.

d) **Duties and Functions of the OH&S Representatives (Section 18 of the OH&S Act)**

The Principal Contractor shall ensure that the designated OH&S representatives perform their functions in respect of the workplace or section of the workplace for which they have been appointed. These functions include to conduct continuous monitoring and monthly inspections of their respective areas of responsibility, focusing on unsafe acts and unsafe conditions and report thereon to The Principal Contractor and OH&S Committee. OH&S representatives shall participate in accident or incident investigations. OH&S representatives shall attend all OH&S committee meetings. The complete list of functions can be found in Section 18 of the OHS Act.

e) **Appointment of OH&S Committee (Sections 19 and 20 of the OH&S Act)**

The Principal Contractor shall establish an OH&S committee, which shall meet at least once a month, where two or more Health and Safety Representatives have been appointed. OH&S representatives must be appointed as OH&S committee members. The number of members nominated by management may not exceed the number of OH&S representatives on the committee and must be appointed in writing.



## E1011 OPERATIONAL INTEGRITY

The operational integrity of plant, equipment, structures and protective systems must be monitored and assured on an ongoing basis throughout the project cycle. Hazards must be identified, risks assessed and as far as reasonably practicable, eliminated or the risks treated to as low as reasonably practicable (ALARP).

### a) Construction Plant & Equipment

The Principal Contractor shall maintain all items of plant and equipment necessary to perform the work in a safe condition.

SANRAL reserves the right to inspect items of plant and equipment brought to site and used on site by The Principal Contractor. Should it be found that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, The Principal Contractor will be advised of such observation/inspection, and The Principal Contractor shall be required to repair, make safe or remove such item from operation and replace it with a safe and adequate substitute.

The Principal Contractor shall ensure that all plant, equipment, and power tools that are brought onto and used on site are:

- *Appropriate for the type of work to be performed.*
- *Placed on a register and inspected by a competent person and/or the authorized operator before use, daily or monthly dependent on Legislation.*
- *Record inspection findings on a register that must be kept on site.*
- *The inspection register shall reflect the serial number of the plant, equipment or power tool.*
- *Maintained and used in accordance with the manufacturers' recommendations.*
- *Have adequate machine guarding fitted to all exposed rotating or moving parts, as reasonably practicable, that have the potential to cause harm.*
- *All electrical power supply units are protected with operational earth leakage devices.*
- *Any defective, damaged or sub-standard equipment must be marked as unsafe for use and removed from operation as soon as possible.*

### b) Standards and Registers

As standard project procedures, The Principal Contractor is expected to:

- *Set up an initial set of registers as per the requirements of the OHS Act and Regulations.*
- *Complete the registers for each piece of plant, tool and equipment brought on and used on site.*
- *Maintain a complete, continuous and comprehensive inspection and service history in these registers or checklists.*
- *Ensure daily, weekly, monthly inspections are done and recorded for all plant, tools & equipment by a competent person and/or authorized operator as required by the OHS Act and Regulations.*
- *Have the inspection and maintenance records available for audit purposes.*

## E1012 OCCUPATIONAL HEALTH AND HYGIENE

### a) Medical Fitness for Duty

All contractor employees shall undergo medical examinations and be certified fit for duty by an Occupational Health Practitioner before they are allowed to work on site.

The medical certificate must be in the form of Annexure 3 of the Construction Regulations and stipulate the possible exposures the employee might be exposed to during the execution of the project.

It is recommended and in the best interest of The Principal Contractor to implement pre-employment, periodic, as well as exit medical surveillance, especially with regards to Section 8 of the Noise Induced Hearing Loss Regulation.

b) **First Aid**

According to GSR 3(4), where more than 10 employees are employed at a workplace/worksites, The Principal Contractor shall ensure that there is at least one trained first aider for every group of 50 employees at the workplace/site. First Aid boxes must be provided where more than 5 employees are employed and must be readily available and accessible for the treatment of injured persons at the workplace.

To ensure immediate treatment of an injured person, it is recommended that all work crews have at least one trained first aider, with a fully stocked first aid box, irrespective of the number of people in the work crew. This is especially important when contractors work at great distances from the nearest emergency facility or town. These persons shall be appointed in writing as the first aiders with their certificates attached as proof of competency.

The minimum contents of the first aid box shall be as per the supplied list in the General Safety Regulations.

All treatments done must be recorded on a register and kept with the first aid box. A trained and appointed first aider must be responsible for the first aid box and its content. Used content must be replenished as soon as possible.

In order to ensure prompt response at the emergency facility it is recommended that the W.CI 2 forms be partially completed with the Employers' details.

c) **Hygiene Facilities**

The Principal Contractor and his contractors shall ensure compliance to Section 30 of the Construction Regulations with regards to facilities on the construction site as well as where accommodation is provided to employees on remote sites. The Principal Contractor shall ensure that the facilities are kept clean at all times, either through a service provider or self-employed persons. The Principal Contractor shall provide employees with at least one sanitary facility for each sex and for every 30 workers, changing facilities for each sex and sheltered eating areas.

d) **Health related Epidemics and Pandemics**

The contractor shall, as far as reasonably practicable describe in his health and safety plan how health related epidemics and pandemics will be dealt with. The Employer is aware that this section in the health and safety plan will not speak to specifics, but generic procedures. The Contractor must ensure that the requirements stipulated in the Hazardous Biological Agents (HBA) Regulation are addressed in his health and safety plan, training and information given to staff and procedures implemented on site to prevent health risks on site.

Once the nature and scale of the epidemic or pandemic is known, the Contractor must update his health and safety plan with the relevant information and send the updated plan to the relevant appointed OHS Agent for approval. Once approved, the Contractor must implement the updated health and safety plan and maintain the updated plan on site.

## **E1013 WASTE MANAGEMENT**

The Principal Contractor shall comply with all applicable and relevant Waste management legislation, as well as municipal bylaws applicable to waste management.

The Principal Contractor shall remove all waste generated at the construction site as soon as possible after generation to ensure good housekeeping at all times. The Principal Contractor shall have a waste management plan which must be implemented on the construction site and which will have the objective to ensure that waste is managed according to the Waste Management Hierarchy:

- Reduce what you can. If you cannot reduce then,
- Re-use what you can. If you cannot re-use then,
- Recycle what you can. What you cannot recycle,
- Convert into energy sources. If it cannot be converted to an energy source,
- Dispose of in a landfill – this is only to be done as a last resort and disposed without endangering human health and without using processes or methods which could harm the environment.

## **E1014 HAZARDOUS SUBSTANCE MANAGEMENT**

The Principal Contractor shall ensure that hazardous substances brought onto site are easily identifiable and stored according to the requirements of the General Safety Regulations, GNR. 1031 of 1986, Section 4.

Where flammable liquids are being used or stored, this must be done in a manner which would not cause a fire or explosion hazard.

The Principal Contractor shall have Material Safety Data Sheets (MSDS) readily available for flammable, hazardous and toxic chemical substances and materials brought onto site and shall ensure that his employees are trained in these MSDS's.

Flammable, hazardous or toxic chemical substances may not be stored in empty food or drink containers. Empty flammable, hazardous and toxic containers must be disposed of in a safe manner, which will prevent further use of such a container.

A survey of the construction site must be done during site establishment, to locate any asbestos. Should asbestos be located, the conditions of the Asbestos Regulations, GNR. 155 of 2002 must be followed and complied with.

## **E1015 CONTRACTORS**

### **a) Consultations, Communications and Liaison**

OH&S liaison between the Employer, The Principal Contractor, The Contractors, the designer and other concerned parties will be through the OH&S committee. In addition to the above, communication may be directly to the Employer or his appointed agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their construction managers and supervisors, OH&S representatives and the OH&S committee. The Principal Contractor shall be responsible for the dissemination of all relevant OH&S information to The Contractors e.g. design changes agreed with the Employer and the designer, instructions by the Employer and/or his/her agent, exchange of information between subcontractors, the reporting of hazardous/dangerous conditions/situations etc. The Principal Contractors' most senior manager on site shall be required to attend all OH&S meetings.

### **b) Operational Procedures**

Each construction activity shall be assessed by The Principal Contractor so as to identify operational procedures that will mitigate against the occurrence of an incident during the execution of each activity. This specification requires The Principal Contractor:

- to be conversant with all relevant Regulations;
- to comply with their provisions;
- to include them in his OH&S plan where relevant

### **c) Checking, Reporting and Corrective Actions**

#### **i) Monthly Audit by Employer (Construction Regulation 5(1)(o))**

The Employer will conduct monthly health and safety and document verification audits in compliance with Construction Regulation 5(1)(o) in order to ensure that The Principal Contractor has implemented and is maintaining the agreed and approved OH&S plan.

The Principal Contractor will be provided with a copy of the Health and Safety audit report within seven days after the audit. The Employer or his representative may stop any Principal Contractor from executing a construction activity which poses a threat to the health and safety of persons which is not in accordance with the client's health and safety specification and the Principal contractor's health and safety plan for the specific site.

ii) Other Audits and Inspections by the Employer

The Employer reserves the right to conduct other ad hoc audits and inspections as deemed necessary. This will include site safety walks.

iii) Principal Contractor's Audits and Inspections

The Principal Contractor must conduct his own regular internal audits to verify compliance with his own OH&S management system, as well as with this specification.

The Principal Contractor shall furthermore ensure that each contractor's health & safety plan is being implemented and maintained. The Principal Contractor will ensure that periodic health and safety audits and document verification are conducted at intervals mutually agreed upon between the Principal Contractor and any contractor, but at least once every 30 days.

iv) Inspections by OH&S Representatives and other Appointees

OH&S representatives shall conduct monthly inspections of their areas of responsibility and report thereon to their foreman or supervisor, as well as the OH&S Committee, whilst other appointees shall conduct inspections and report thereon as specified in their appointments e.g. vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

v) Recording and Review of Inspection Results

All the results of the abovementioned inspections shall be in writing, reviewed at OH&S committee meetings, endorsed by the chairman of the meeting and placed on the OH&S File.

d) **Project Health and Safety Management Plan**

As per Section 5(1) (l) and Section 7(1) (a) of the Construction Regulations of 2014, The Principal Contractor shall develop, implement and administer a Health and Safety Management Plan. The plan shall be in writing and shall be negotiated between The Principal Contractor and SANRAL or designated OHS Agent and must be approved by SANRAL or the designated OHS Agent prior to the commencement of work on site. The plan shall demonstrate management's commitment to ensure employee health and safety as their primary objective during the contract. The H&S plan shall be site and project specific and must address all aspects of the project H&S specification.

e) **Project Health and Safety File**

The Principal Contractor shall compile a project specific Health and Safety File that consist of all the relevant project specific documentation. The Health and Safety file may consist of multiple files, which when combined should contain all the required documentation.

It is recommended that the project specific Health and Safety file contain at least the following:

- *Scope and summary of the project as well as any scope changes.*
- *Notification of Construction Work to DoL / Copy of Work Permit*
- *Proof of COID registration (Letter of Good Standing)*
- *Contractor Health and Safety Policy statement signed by management*
- *Appointment of Principal Contractor*
- *Mandatory Agreement – OH&S Act 37.2 (Between Employer and Principal Contractor)*
- *Client Health and Safety specification*
- *Latest copy of the OHS Act and Regulations*

- *Company Organogram depicting Health and Safety Responsibilities, including sub-contractors*
- *Employee list including copy of IDs and medicals*
- *Project specific Health and Safety Management Plan agreed with the Employer – See E1015(d) above*
- *Relevant OH&S Legal appointments which includes duties and responsibilities as well as competencies (training certificate)*
- *Copies of minutes of meetings – OH&S committee and other relevant OH&S meeting minutes*
- *Site specific Fall Protection Plan (if applicable)*
- *Risk Assessments*
- *Contractor Induction material*
- *Waste management Plan*
- *Emergency preparedness (first aid, firefighting, emergency plan, etc.)*
- *Emergency Contact Telephone numbers*
- *List of hazardous chemical substances used on site*
- *Material Safety Data Sheets of hazardous chemicals on site*
- *List of plant & equipment to be used on site*
- *Inspection Checklists/Registers of plant & equipment and emergency equipment*
- *List of Sub-contractors including type of work*
- *Sub-contractor 37.2 Mandatary Agreements*
- *Sub-contractor appointments which shall include the type of work The Principal Contractor is appointed for.*

f) **Contracting Philosophy**

Any site-specific hazards and safety management expectations will be made known to the Principal Contractor prior to the work commencing on site. This will be done through the OH&S Specification for the project. SANRAL as the Employer/Client may specify requirements that are stricter than Legislative requirements in this OH&S Specification. Legal OHS requirements contained in the OHS Act and Regulations, SANS Codes and the project OH&S Specifications are the minimum requirements the Principal Contractor must apply during this contract with regards to Occupational Health and Safety. The Principal Contractor shall implement the minimum OH&S requirements and ensure conformance to these at all times.

g) **Workers Compensation Registration**

The Principal Contractor shall ensure that his employees are covered for any occupational injuries and illnesses in terms of the Occupational Injuries and Diseases Act 130 of 1993, which cover shall remain in place and up to date for the duration of the project.

The Principal Contractor shall ensure that his sub-contractor employees are covered for any occupational injuries and illnesses in terms of the Occupational Injuries and Diseases Act 130 of 1993, which cover shall remain in place and up to date for the duration of the project.

h) **HSE Non-Compliance**

It is a legal duty of the client according to the Construction Regulation 5(1)(q) that a Principal Contractor is stopped from executing any activity which poses a threat to the health and safety of persons. Depending on the seriousness of the non-compliance only the specific activity may be stopped until the non-compliance is rectified or the whole operation may be stopped.

It is also the duty of every employee to take reasonable care of his own health and safety and of other persons who may be affected by his acts as per OHS Act, Section 14(a). Keeping this in mind, it is required of The Principal Contractor to ensure his employees has the right to remove themselves from any unsafe situation or work activity, without any negative consequence to them until such time as The Principal Contractor has made the unsafe situation or activity as safe as practicable possible.

i) **Indemnity by Contractor**

The Principal Contractor shall indemnify the Employer against and from all damages, losses and expenses (including legal fees and expenses) resulting from:

- i) the loss of output and delay caused by the slowing down or partial or total stoppage of work caused by:
- *all or any of The Principal Contractor's workforce as a result of a dispute between all or any of the Principal Contractor's workforce and The Principal Contractor; or*
  - *all or any of the Principal Contractor's suppliers' difficulty or impossibility to deliver goods or materials needed to perform the Works;*
- ii) Any unlawful, riotous or disorderly conduct by or amongst the Principal Contractor's personnel."

j) **The Principal Contractor Conduct**

Guidelines to the most important rules that shall be implemented and maintained by the Principal Contractor:

- *Complete compliance to the OH&S Act 85 of 1993 and Regulations,*
- *Hazard identification and Risk Assessments for all activities,*
- *Daily communication of DSTI's before work commences, even if it is a repetitive task,*
- *Safe access and egress to and from work areas,*
- *Compulsory use of lifelines, Safety Harnesses and Fall Arrestors (Lanyards to be attached at all times), when working in elevated positions,*
- *Scaffold shall comply with Legal and SANS standards at all times,*
- *Good housekeeping and stacking practices,*
- *Safe lifting, rigging and slinging practices,*
- *Complying to Legal standards for lifting machinery & equipment,*
- *No lifting in wind conditions exceeding 30km/h (This is a guide and is dependent on risk assessments),*
- *Securing of tools, equipment and material at heights,*
- *Wearing of appropriate personal protective equipment as identified in the risk assessment.*

Supervisors in charge are responsible for ensuring that the employees are aware of the hazards/risks involved in the work they will be doing/are doing and shall ensure the safety rules are obeyed.

No person shall act in a manner that endangers or is likely to endanger, the safety of any other person, or cause harm to any other person.

An employee who observes any dangerous situation, shall as soon as possible inform the person who is responsible for that section of the site.

Any employee who becomes aware of any person disregarding any safety rules, shall remind that person of the rules. If he persists in disregarding the rules, the matter must be reported to his supervisor.

No person shall damage, alter, remove, render ineffective or interfere with anything that has been provided for the protection of the site, or for the health and safety of persons.

No person shall interfere with or use firefighting equipment without authority and training.

No person in a state of intoxication or condition that render him incapable of controlling himself shall enter or be allowed to enter the site.

No alcohol or illegal drugs shall be taken onto the site.

All safety and warning signs shall be obeyed.

Always be alert of construction vehicles as well as traffic. Never turn your back to oncoming traffic, always have a line of sight.

k) **Principal Contractor and Contractor Management**

The Principal Contractor shall establish, maintain and ensure that all his contractors establish and maintain OH&S standards and systems as necessary and to comply with the Legal requirements as well as these OH&S specifications.

The Principal Contractor shall be solely responsible for carrying out work on the project, having the highest regard for the health and safety of his employees and people in the vicinity of his work area.

l) **Public Health and Safety**

The Principal Contractor shall, as far as is reasonably practicable, be responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers.

This includes:

- Non- employees entering the site for whatever reason
- The surrounding community
- Passers-by to the site.

## **E1016 DESIGNING FOR HEALTH, SAFETY AND THE ENVIRONMENT**

Designing for safety is a process aimed at minimizing injury, death, property damage or destruction and harm to the environment, by utilizing an approach to identify and eliminate or control hazardous conditions and material during the design process. The Principal Contractor is responsible for appointing the temporary works Designer and shall ensure that the temporary works Designer implement a process and designs the temporary works in such a way that ensure the safety of employees during the erection, use and dismantling of the temporary works. The temporary work designer shall comply with the duties of the Temporary Work Designer as per the Construction Regulations, 2014 Section 6(2).

The Principal Contractor must communicate the anticipated risks and hazards resulting from the design to his employees and establish safe work procedures for the temporary works.

## **E1017 INCIDENT MANAGEMENT**

The Principal Contractor shall ensure that a culture exists within his company that promotes the recognition, response, reporting and investigation of incidents, including near misses (near hits). The Principal Contractor must implement a procedure for reporting and investigating accidents, incidents and near misses. The Principal Contractor should have a clear objective and target to obtain zero injuries for the duration of the project and such an objective must be communicated to all employees.

Appropriate corrective actions must be implemented, and the applicable learnings must be shared within The Principal Contractors business to prevent a recurrence of the incident or to prevent the near miss from becoming an incident in future.

(a) **Incidents and Accidents**

The Principal Contractor and his contractors shall coordinate their investigation of all accidents/incidents where employees and non-employees were injured to the extent that he had to be referred for medical treatment by a doctor, hospital or clinic. The results of the investigation shall be entered into an accident/incident register, which must be updated with each accident/incident.

The Principal Contractor shall notify the relevant SANRAL Project Manager and or SANRAL OHS Specialist of any incident/accident within the Principal Contractors or his Contractors area of responsibility in writing as soon as possible.

Although the accident/incident is reported to the client, the Principal Contractor has a responsibility and is required by law to report any Section 24 accidents and incidents to the Department of Labour. Any road traffic accident must be reported to the relevant authorities.

It is essential that the Principal Contractor demonstrate that corrective and preventative action has been taken to prevent a similar incident in future and that it is communicated to all the Principal Contractors affected staff. A copy of the investigation, corrective and preventative action taken as well as the attendance register of the employees who attended the discussion of the incident and the action implemented to prevent a similar incident, must be forwarded to the SANRAL Project Manager and or the SANRAL OHS Specialist.

Investigations must be completed for:

- Near Miss Incidents (To prevent it from becoming an incident)
- First Aid case Incidents
- Medical treatment case Incidents
- Fatalities

**(b) Incident Reporting**

The Principal Contractor shall provide the Employer with copies of all statutory reports required in terms of the Act within 7 days of the incident occurring. In addition, The Principal Contractor shall update monthly the Disabling Injury Frequency Ratio (DIFR) and display this information on a signboard at the site office.

The Principal Contractor is responsible for collecting, recording, calculating and reporting his and his sub-contractors Health & Safety statistics to the SANRAL OHS Specialist.

The statistics should contain at least the following for all employees of all contractors working on the project:

- Total Number of workers
- Total Number of hours worked (on the SANRAL project)
- Total Number of Near Miss Incidents
- Total Number of First Aid case Incidents
- Total Number of Medical Treatment case Incidents (Excluding Section 24 type incidents)
- Total Number of Section 24 type Incidents
- Preventative actions taken on incidents that have occurred
- Communication to employees and contractors of incidents and preventative actions.

**E1018 PROJECT SPECIFIC CONSTRUCTION REQUIREMENTS**

The clause contains specific requirements for Contract SANRAL N017-024-2019/1 FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD, which must be adhered to in addition to minimum legislative requirements.

**a) Baseline Risk Assessment**

The following is a list of activities, hazards and risks identified which forms the Baseline Risk Assessment for the project prepared by the Client in terms of Construction Regulation 5(1) (a):

Risks associated for identified activities and hazards:

Activity	Associated Hazards	Associated Risks	Risk Rating High Medium Low
Site establishment	Extreme temperatures; Pesticides, herbicides, dust. Snakes, bees, spiders, vermin (rats & mice);	Heat exhaustion; Dehydration; Poisoning; Fatality / Serious health effect;	M



Activity	Associated Hazards	Associated Risks	Risk Rating High Medium Low
	Portable electrical equipment; Electrical hand tools; Lifting equipment; Aggrieved members of the public.	Silicosis; Electrical shock; Personal Injuries; Falling objects; Strikes / riots	
Security	Aggrieved members of the public; Uncontrolled people	Protest Riots Theft	M
Loading / Unloading of materials / plant & equipment from trucks	Lifting equipment; Inexperience operators; Inexperienced workers;	Material / plant falling from height; Operator losing control; Employees under/close to suspended loads.	M
Transportation of personnel / materials	Overloaded vehicles; Transportation of workers in vehicles not designed to transport people; Transporting vehicle defective / not roadworthy	Operator losing control of vehicle; Vehicle overturning; Vehicle accidents; Fatality; Serious injuries	H
Erection of temporary site offices / Laboratory	Extreme temperatures; Pesticides, herbicides, dust, cement; Snakes, bees, spiders, vermin (rats & mice); Portable electrical equipment; Electrical hand tools; Lifting equipment; Temporary works; Aggrieved members of the public.	Heat exhaustion; Poisoning; Fatality / Serious health effect; Silicosis; Electrical shock; Personal Injuries; Falling objects; Strikes / riots	M
Working with and handling of hazardous / flammable / toxic materials	Hazardous, flammable and toxic substances	Chemical burns; Fire; Serious injuries; Fatalities	M
Disposal of waste materials	Hazardous waste	Environmental pollution Re-use of containers can have serious health effect on people or fatal.	H
Traffic accommodation / calming	Public vehicles; Extreme temperatures Stop & Go	Employees run over by public vehicles – serious injuries / fatalities Heat exhaustion Public not adhering to stop & go signals / try to bypass stop & go – fatality / serious injuries / vehicle accidents.	H
Working in elevated positions - Working at heights, on slopes,	Defective / Inadequate equipment; Improper use or non-use of fall protection equipment;	Inadequate protection of employees against falls; Electrical Shock; Electrical arching;	H

Activity	Associated Hazards	Associated Risks	Risk Rating
			High Medium Low
next to excavations, on trucks.	Environmental conditions – rain / strong wind, lighting; Live electrical power lines; Suspension trauma.	Slippery work surfaces; Fatality / serious injuries;	H
Stockpiling	Material falling from stockpile	Serious personal injuries; Material damage	M
Operations involving Noise	Noise	Noise induced hearing loss	M
Operations involving Vibration	Vibration	Damage to joints, muscles, circulation and sensory nerves.	M
Working above / near water environments	Working at heights Water environment	Drowning	M
Working near existing services – overhead/underground power cables; telecommunication cables	Electricity	Electrical Shock; Electrical arching; Fire; Burns Fatality Serious injury	H
Working with portable electrical equipment – grinders, circular saws, generators	Electricity Electrical tools Portable electrical equipment	Electrical shock Cuts Personal injuries	M
Lifting / Lowering operations	Elevated objects Lifting machines Improper rigging Electrical cables	Lifting machine / crane overturning; Falling objects Dropped loads Strong winds Loads striking personnel, vehicles or equipment. People working underneath High voltage power lines may arch onto crane boom.	H
Driving and operation of construction vehicles and mobile plant	Distracted drivers; Recklessness; Impaired driving; Poor visibility; Poor road conditions; Unsecured loads; Uncontrolled vehicle entry; Equipment failure; Public vehicles; Uneven ground surfaces	Fatalities; Serious injuries; Crashes; Vehicles, plant and equipment damage; Workers not seen by operators; Workers working too close to mobile plant and vehicles; Construction vehicles & mobile plant not road worthy / defective; Roll over of construction vehicles / plant.	H
Excavation work	Unstable ground	Cave-ins;	H

Activity	Associated Hazards	Associated Risks	Risk Rating
			High Medium Low
	Underground electrical cables; Underground pipelines; Excavation equipment, construction vehicles & plant.	People falling into excavation; Workers buried in excavation due to cave-ins; Construction vehicles / plant falling into excavation; Fatalities; Serious injuries	High
Use of explosives	Explosives; Flying debris	Fatality; Serious Injuries	M
Gabion work	Manual handling Slopes Slippery Rocks	Personal injuries Trips, Slips & Falls	M
Work adjacent or in proximity of railway lines	Trains	Working too close to railway track can cause train draft to suck workers under trains. People falling onto or in front of trains while working above railway track.	H
Work adjacent or near traffic	Public vehicles	Workers not attentive to approaching vehicles. Drivers not slowing down to indicated speed limit. Drivers losing control of their vehicles.	H
Temporary works – Form work & support work	Temporary works	Falls from height; Collapse of temporary work overloading	H
Demolition work	Demolition equipment Flying debris Explosives;	Fatality; Serious Injuries; Damage to equipment; Damage to public assets	H
Work adjacent to public property	Construction plant and equipment; Excavation activities; Demolition activities;	Injury to public persons; Damage to public property and assets;	H
Protection of public H&S	Unprotected temporary works; Stockpiles; Incomplete structures.	Public persons accessing construction area, stockpiles and incomplete structures. Fatality / Serious injury to public persons	H
Welfare facilities – drinking water; eating facilities; sanitary facilities	Water not suitable for human consumption; Shortage of water; Hazardous substances; Environmental impact.	Serious health effects; Dehydration Environmental pollution	M
Working in the environment	Bees Snakes Spiders Lighting Strong winds	Poisoning; Fatality / Serious health effect; Electrical shock / burns; Personal Injuries;	M

Activity	Associated Hazards	Associated Risks	Risk Rating High Medium Low
	Heavy rain Hot/cold conditions	Slips; Drowning; Heat exhaustion; Dehydration;	Medium
	Hazardous biological agents	Serious health effects; Fatality; Pandemic; Epidemic	H

b) **Daily Site Attendance Register**

The Principal Contractor shall keep a daily site register so as to be able to identify the entire Contractors personnel on site in case of an emergency or evacuation situation. The attendance register must include permanent as well as temporary workers working on the site.

All contractors shall report to security/reception upon arrival at site. The Principal Contractor will only grant first time access to work on the site if all required documentation has been provided by the contractor and has been approved by the Principal Contractor.

All site visitors, suppliers and any new contractors shall report to security/reception upon arrival at site. All visitors need to sign an attendance register when visiting the site. Visitors include all persons which are not permanently working on the site but excludes temporary site workers. Visitors must undergo site induction training before they are allowed on site to make them aware of the site dangers.

c) **Emergency Numbers / Emergency Evacuation**

A list with emergency numbers must be readily available to first aiders and supervisors. Emergency numbers must be site specific and must display the nearest emergency facilities.

The Principal Contractor shall identify and formulate emergency procedures in the event an incident does occur. The emergency procedures thus identified shall also be included in The Principal Contractor's OH&S plan and communicated as part of induction training. It is the responsibility of the first aid worker, together with the construction supervisor, to make an assessment regarding the severity of injuries and which actions are appropriate. For example: transfer to a medical facility by ambulance or helicopter.

The Principal Contractor must implement an emergency evacuation procedure on site to ensure that in case of an emergency, all staff will leave their place of work when the emergency siren is sound and proceed to the designated emergency assembly point. The emergency assembly point at the site office must display the sign "Emergency Assembly Point".

An evacuation route diagram must be displayed and visible at strategic points in the site office buildings and on notice boards.

All staff working on site must be given awareness training on the emergency evacuation procedure and evacuation drills must be exercised to ensure all staff know the correct procedure to follow in case of an emergency.

d) **Site Security**

Certain areas where work must be carried out, is recognized unsafe areas and certain other areas may from time to time become unsafe, due to 3<sup>rd</sup> party actions. The Principal Contractor must, as far as reasonably possible, anticipate unsafe areas and must ensure that his site staff is safe from 3<sup>rd</sup> party actions, which include but is not limited to:

- Unrests,
- Violent Demonstrations,
- Theft,

- Injury to staff due to 3<sup>rd</sup> party actions.

The Principal Contractor must, when work is to be carried out in the above-mentioned areas, make provision for security services to accompany site staff during the execution of their work, as The Principal Contractor is responsible for the Health, Safety and Security of his own staff. The provision for security services must form part of The Principal Contractors tender.

e) **Personal Protective Equipment**

Comply with General Safety Regulations, Section 2

The Principal Contractor shall identify the hazards in the workplace and follow the hierarchy of controls to prevent incidents. Where possible, hazards must be eliminated or, where impracticable, mitigate the hazards through implementing control measures. Where mitigated hazards still pose a risk to the health and safety of workers, take steps to protect workers and make it possible for them to work safely and without risk to their health under the hazardous conditions, by wearing personal protective equipment and clothing.

Personal protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigate hazardous situations before the wearing of PPE is considered. The hierarchy of hazard control must be followed before the option of personal protective equipment is considered. The following hierarchy of controls must be followed:

- Elimination
- Passive Controls
  - Substitution – Using a cherry picker or man-lift instead of a ladder.
  - Engineering Controls – Installing barrier railings; Installing stairs instead of using vertical ladders.
- Active Controls
  - Administrative policies and procedures
  - Personal protective equipment

Where it is not possible to create an absolutely safe and healthy workplace, the Principal Contractor shall inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the Principal Contractor maintain the said equipment, that he instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use/wear the equipment prescribed by the Employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition/s for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.

The Principal Contractor shall include in his OH&S plan the PPE he intends issuing to his employees for use during construction and the sanctions he intends to apply in cases of non-conformance by his employees. Conformance to the wearing of PPE shall be discussed at the DSTI and Toolbox Talk meetings.

The Principal Contractor shall ensure that all his personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and that these are worn at all times when working on site. Any person found not wearing a reflective jacket on site must be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets shall be kept in good condition and any jackets that are ineffective must immediately be replaced by The Principal Contractor.

f) **Site Supervision**

Comply with Construction Regulation, Section 8.

The Principal Contractor shall appoint a competent Construction Manager who shall be responsible for the construction activities and for ensuring occupational health and safety compliance on the construction site.

g) **Working in Elevated Positions**

Comply with Construction Regulation, Section 10

The Principal Contractor shall ensure that a fall protection plan, developed by a competent person who is designated as the Fall Protection Plan Developer, is available on site and understood by all employees who will be working in elevated positions.

All employees working in elevated positions shall protect themselves from falls by wearing a full body harness and the lanyard shall be attached as far as possible above the head of the worker to a lifeline or other approved and anchor point indicated in the fall protection plan.

In addition to obvious elevated work activities, work activities which include:

- Working on the edge of an excavation where there is a risk of falling into the excavation; or
- Work on the edge of a vertical drop where there is a risk of falling;

shall be considered work in elevated positions and Section 10 of the Construction Regulations must be adhered to at all times. The hierarchy of controls must be implemented when such activities are carried out. As a minimum the employee must wear PPE as identified in the risk assessment, which shall include a full body harness.

h) **Structures**

Comply with Construction Regulations, Section 11.

The Principal Contractor shall ensure that all practicable measures are taken to prevent the uncontrolled collapse of new or existing structures or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work. No structure may be loaded in a manner which would render it unsafe.

When a structure is of temporary nature, all conditions as required by the Construction Regulations Section 12 - Temporary Works, must also be complied with.

i) **Excavations**

Comply with Construction Regulations, Section 13

The Principal Contractor shall ensure that all excavations are carried out under the supervision of a competent person who has been appointed in writing as Excavation Supervisor.

The Principal Contractor must evaluate the stability of the ground before excavation work begins as well as during excavation work.

Excavations must be barricaded to prevent unauthorized access.

Material removed from excavations, as well as heavy machinery and construction vehicles, must not be closer than 1 meter to the edge of the excavation, to prevent additional loads on the excavation edge, which could cause cave-ins, to prevent construction vehicles from falling into the excavation and to prevent the accumulation of carbon monoxide gas inside the excavation.

The principal contractor and its contractors must cause every excavation which is accessible to the public or which is adjacent to the public roads or thoroughfares, or whereby the safety of persons may be endangered, to be –

- Adequately protected by a barrier or fence and as close to the excavation as is practicable; and
- Provided with warning illuminants or any other boundary indicators that are clearly visible at night or when visibility is poor.

People working in the excavation must be adequately protected from cave-ins, by means of protection systems such as trench boxed and shielding and must have a safe means of access into the excavation and egress from the excavation.

j) **Scaffolding**

Comply with Construction Regulations, Section 16, General Safety Regulations, Section 6 and SANS 10085 – The Design, erection, use and inspection of access scaffolding.

The Principal Contractor shall appoint a competent person in writing as scaffolding Supervisor. Scaffolding Inspectors and Scaffolding Erectors must be trained and found competent to carry out scaffolding work. It is important to note that only competent scaffold erectors are allowed to build the scaffolding. The scaffold inspector is not allowed to build the scaffold with the scaffold erector team.

Scaffolding shall be erected according to SANS 10085 and shall be tagged “Unsafe for use” while it is being build and “Safe for Use” after inspection indicated that the scaffold is safe to use. The inspection of the scaffold shall be in writing and proof thereof shall be available for any user of the scaffold as well as for audit purposes.

Scaffold left erected while The Principal Contractor is not in attendance, must be tagged with a “Not Safe for Use” tag and all reasonably practicable measures must be taken to prevent unauthorised access to the scaffold.

Scaffold must be inspected by the competent scaffold inspector on completion of the scaffold build, weekly thereafter or following severe weather conditions.

Hazards such as overhead power lines must be identified before the scaffold is build and must be reflected in the risk assessment.

When using mobile scaffold, employees and materials must be removed from scaffold before moving the mobile scaffold. Hazards such as overhead power lines must be identified before moving mobile scaffold and must reflect in the risk assessment.

k) **Suspended Platforms**

Comply with Construction Regulation, Section 17, SANS 10295-2 - Suspended access equipment Part 2: Temporary suspended platforms (TSPs)

All suspended platform work must be carried out under the supervision of a competent appointed Suspended Platform Supervisor. Suspended platform erectors, operators and inspectors must be competent.

The Principal Contractor must be in possession of a certificate of design for the use of the suspended platform system.

l) **Cranes**

Comply with Construction Regulation, Section 22, Driven Machinery Regulation, Section 18.

Crane operators must be trained and found competent to operate the particular type of lifting machine and have a valid operator’s card. The crane operator must be in possession of a valid medical certificate of fitness, issued by an occupational health practitioner.

The wind factor should always be taken into consideration when operating cranes and a wind speed device must be fitted so that it provides the operator with an audible warning when the speed exceeds the safe lifting speed. Upon noticing that the wind speed is equal or more than the specified speed limit, the operator should stop immediately.

m) **Construction Vehicles & Mobile Equipment**

Comply with Construction Regulation, Section 23, National Road Traffic Act, 1996

Construction vehicle operators must have received training to operate the class of construction vehicle or mobile equipment and must be in possession of an operator’s card as proof of competency. Construction vehicle operators must be authorised in writing and have a medical certificate of fitness issued by an occupational health practitioner to operate the construction vehicle and/or mobile equipment.

All construction vehicles operating on a public road, must be roadworthy, licenced and when operated on a public road, comply with the National Road traffic Act.

n) **Electrical Equipment**

Comply with Construction Regulations, Section 24.

The Principal Contractor shall take adequate steps to ascertain the presence of and guard against danger to workers from electrical cables or apparatus which is under, over or on the site.

The exact location of underground electric power cables must be determined before any excavators are used for excavation purposes.

The location of overhead electrical cables must be assessed when working with cranes and lifting equipment. Injury may be possible from touching the electrical cables with the crane boom, or from arching when the crane boom comes too close to the electrical cable.

All temporary electrical installations must be inspected at least once a week by a competent person and the records of the inspections must be recorded in a register which must be kept on site.

Electrical machinery and extension cords must be in a serviceable condition and must be inspected on a daily basis before use on a construction site by the authorised operator and the inspection checklist must be kept on the construction site.

Comply with Electrical Installation Regulations.

All electrical installations shall be inspected and approved by an accredited electrical inspector and a valid Certificate of Compliance must be issued for the installation.

All electrical installations carried out on site (permanent and temporary) must be in accordance and comply with the Electrical Installation Regulations.

All power supplies and generating units must be fitted with a functional earth leakage device.

o) **Temporary Storage of Flammable Liquids**

Comply with Construction Regulation, Section 25 and General Safety Regulations, Section 4

The Principal Contractor must ensure storage areas of flammable liquids are well ventilated and “No Smoking” signs are placed at the entrances and ventilation ducts of the storage areas. Firefighting equipment must be available in suitable positions around the storage areas.

The Principal Contractor must ensure that good housekeeping is practiced in and around the flammable storage areas.

p) **Water Environments**

Comply with Construction Regulation, Section 26.

The Principal Contractor must ensure that a lifejacket forms part of the employees PPE and is worn when the employee is exposed to the risk of drowning, by falling into water.

The risk assessment must make provision for the rescuing of persons in danger of drowning and for preventing employees from falling into the water.

When working next to a river, the Principal Contractor shall put a system in place to monitor the river water level in order to evacuate employee in case of a flood.

When working over water environments, Section 10 of the Construction Regulations – Fall Protection will also apply.

q) **Housekeeping**

Comply with Construction Regulation, Section 27, Environmental Regulations for Workplaces, Section 6(3).

The Principal Contractor shall ensure that suitable and acceptable housekeeping is continuously implemented and maintained on the construction site. Off-cuts and waste must be removed as soon as practicable.



r) **Stacking & Storage of Material, Plant & Equipment**

Comply with Construction Regulations, Section 28 and General Safety Regulations, Section 8.

The Principal Contractor shall appoint a competent person in writing with the duty of supervising all stacking and storage operations on site.

Stacking shall only take place in areas specifically demarcated for this purpose. Circular items must be secured with wedges or chocks.

Items removed from a stack shall only take place from the topmost layer of the stack.

Stacks shall not obstruct any fire extinguishing equipment, first aid equipment, electrical switchgear (DB Boxes) and ventilation or lighting installations.

Unstable stacks must be broken down immediately.

s) **Fire Precautions**

Comply with Construction Regulation, Section 29.

The Principal Contractor must provide his own firefighting equipment that is within the service date and safe for use. Firefighting equipment must be on a register and inspected by a competent person who has been appointed in writing.

Suitable and sufficient fire extinguishing equipment must be placed at strategic locations and a sufficient number of firefighters must be available, which must be trained in the use of it.

t) **Intoxicating Liquor and Drugs**

Comply with General Safety Regulations, Section 2A.

The principal Contractor must compile a Substance Abuse Policy, which must be communicated to all employees. This policy should form part of the induction material for employees as well as visitors.

The Substance Abuse Policy should set the limit for intoxication to zero in order to complement a vision of zero tolerance.

Any person found to be intoxicated, or consuming intoxicating liquor or illegal drugs, shall not be allowed onto the premises and/or must be removed from the premises.

The Principal Contractor has the right to test any person entering the premises for intoxicating liquor or illegal drugs and may refuse entrance on the basis of the outcome of the test.

The Principal Contractor shall ensure that employees taking prescription medicine informs the Principal Contractor of such and shall ensure that the side effect of such medicine does not constitute a hazard to the employee himself or people working with, or in close proximity to the employee.

u) **Confined Space Work & Tunnelling**

Comply with Construction Regulation, Section 15 and General Safety Regulations, Section 5.

The Principal Contractor shall ensure that only authorized persons enter confined spaces.

An entrance log must be kept to ensure people are not left inside the confined space. Adequate air monitoring must be carried out before entering the confined space. When air monitoring indicated the oxygen to be less than 20% by volume, the confined space must be purged and ventilated to obtain a safe atmosphere or self-contained breathing apparatus must be used.

v) **Site Services**

The Principal Contractor shall provide and maintain on the site adequate facilities for employees to use, which must be serviced and kept sanitary and hygienic at all. The following site services should be taken not of:

i) Drinking Water

The Principal Contractor must ensure that an adequate supply of potable drinking water is available for all persons engaged in managing and working on the construction site and, if necessary, similar facilities elsewhere for such personnel off the site. Employees working in hot conditions must consume enough water per hour to prevent dehydration.

Where water is unsafe for human consumption, it must be so indicated by means of adequate signage.

ii) Accommodation

The Principal Contractor shall comply with the requirements of Construction Regulation 30 with regards to employee's accommodation. Reasonable and suitable living accommodation must be provided to employees who are far removed from their homes.

iii) Sanitary Facilities

The Principal Contractor shall comply with the requirements of Construction Regulation 30 with regards to employee's sanitary facilities. Sanitary facilities must be positioned in close proximity of the work area. Sanitary facilities must be serviced regularly and kept in a clean and hygienic condition.

w) **Traffic Accommodation**

The Principal Contractor must develop a clear Traffic Management Plan, which must be approved by the Engineer. Traffic must be organized and controlled in accordance with the Traffic Management Plan and any work area must have adequate signage, signaling or other control arrangements to guard against the dangers relating to the movement of vehicles. Where reasonably practicable, solid barriers must be placed between workers and traffic passing by.

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# **PART C3.5: RISK ASSESSMENT PLAN (SECTION E)**

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**Note to tenderer:**

**Refer to E1018 in Part 3.4 for the Risk Assessment Plan.**

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**PART C4:      SITE INFORMATION**

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**PART C4: SITE INFORMATION**

The contents of all site information for the Operations and Maintenance of Toll Plazas on the N17 Toll Route in the Project Information Document (Volume 4) are as follows:

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A2 LANE AREA SCHEMATIC LAYOUT	A2
A3 BUILDING LAYOUTS	A3
A4 TOLL PLAZA AND LANE AREA LAYOUT	A4
<b>PART B MATTERS RELATING TO FIDIC CONDITIONS OF CONTRACT FOR THE DESIGN-BUILD AND OPERATE PROJECTS (VOLUME 1 BOOK 1)</b>	
B1 CURRENT CONTRACTORS AND SUPPLIERS	B1
B2 NOT APPLICABLE	B2
B3 AVC LOOP AND PAD REPORTS	B3
B4 OTDR TEST RESULTS	B4
B5 UPS & GENERATOR 6 MONTHLY REPORT FOR ALL PLAZAS	B5
B6 LIGHTNING PROTECTION AND EARTHING REPORT	B6
<b>PART C MATTERS RELATING TO THE STANDARD SPECIFICATION FOR OPERATIONS AND MAINTENANCE OF CTROM PROJECTS: GENERAL (VOLUME 2 BOOK 2A)</b>	
<b>SECTION 2: PROJECT COMMENCEMENT: HANDOVER AND PROVISION OF DOCUMENTS</b>	
C1 PLAZA MAINTENANCE COST STATISTICS	C1
C2 LIST OF ALL AVAILABLE AS-BUILT DRAWINGS	C2
C3 LIST OF AVAILABLE EQUIPMENT MANUALS, SUPPLIER MANUALS AND USER MANUALS	C3
C4 ASSET REGISTERS: CIVIL, STRUCTURAL, BUILDING, O&M, E&M, LE AND MIS	C4
C5 SANRAL ASSET MANAGEMENT SYSTEM FORMAT	C5
C6 ELECTRICAL CERTIFICATE OF COMPLIANCE (COC)	C6
<b>SECTION 4: TOLL PLAZA EXPANSIONS, UPGRADES ROAD IMPROVEMENTS AND OTHER IMPROVEMENTS</b>	
C7 CURRENT AND PLANNED PLAZA CONFIGURATION AFTER IMPLEMENTATION OF DEDICATED ETC LANES	C7
<b>SECTION 7: OPERATIONS PERIOD - FINANCIAL MANAGEMENT</b>	
C8 SCHEMATIC OF EXISTING QUEUE LENGTH SYSTEM CAMERA POSITION	C8
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**DIRECTORY**

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C19	HISTORIC HOURLY TEL TRAFFIC FIGURES – ALTERNATIVE ROUTE (TEL STATIONS) <ul style="list-style-type: none"><li>• HOURLY TRAFFIC FROM JULY 2016 TO JUNE 2022 FOR CTO'S</li></ul>	C19
C20	FINANCIAL REPORTS FROM JULY 2016 TO JUNE 2022 <ul style="list-style-type: none"><li>• AGI, CASH, CREDIT CARDS, RUN-THROUGH, CREDIT GRANTED, NO PAYMENTS, LOCAL USER DISCOUNT AND FREQUENT USER DISCOUNTS</li></ul>	C20
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**PART D:**

**STAKEHOLDER AND COMMUNITY LIAISON, AND  
TARGETED LABOUR AND TARGETED  
ENTERPRISES UTILISATION AND  
DEVELOPMENT (SECTION D)**

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**PART D: STAKEHOLDER AND COMMUNITY LIAISON AND TARGETED LABOUR AND TARGETED ENTERPRISES UTILISATION AND DEVELOPMENT**

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## D1001 SCOPE

Section D of the Specifications describes the structured engagement with project Stakeholders and affected Communities to the project. It also guides the selection and the enhanced utilisation and development of Targeted Labour and Targeted Enterprises.

Note to Tenderer:

This contract may not have a stand-alone PLC as required in terms of Item D1004. For that purpose, it will be incorporated into Employer's established PLC for the N17 route between Gauteng (Johannesburg) and Mpumalanga (Ermelo). The Contractor is obliged to participate in the PLC activities related or having a direct bearing on this contract and fulfil the Contractor's responsibilities as stipulated below.

Reference to CIDB grading shall apply to work activities where CIDB registration is a requirement such as civil construction, electrical works and building works.

### D1001.01 Principles for Project Liaison, Sub-contracting, and Labour Sourcing in SANRAL Projects (Fourteen Point Plan)

The scope of the work described in this Section D of the Specifications shall be based on the Employer's 14 principles for project liaison, sub-contracting, and labour sourcing in all SANRAL projects, which are stipulated below:

1. *SANRAL will establish a Project Liaison Committee (PLC) for every project to create a platform for project communication with the aim to facilitate successful works execution, subcontracting, procurement, participation with MOU partners, supply of material, services and goods, and employment facilitation.*
2. *SANRAL will chair PLCs and provide secretarial support through the Consulting Engineer or its Agent. Representation on the PLC will comprise SANRAL, the Contractor, the Consulting Engineer or SANRAL's Agent, business representatives, traditional authority representatives, provincial and municipal government representatives (not politicians), community representatives, and any other critical local stakeholder that may be deemed necessary by SANRAL. While serving on the PLC, PLC members must declare any conflict of interest and recuse themselves if requested by the PLC Chairperson.*
3. *The selection of a Project Liaison Officer (PLO), who will be employed by the Consulting Engineer, must be acknowledged, and supported by the PLC.*
4. *The definition of a target area (sometimes referred to as a local area or traffic area) will be determined by SANRAL in consultation with the PLC.*
5. *The setup of databases for contractors, sub-contractors, consultants, and suppliers will be conducted with the input and support of the PLC. The final database will be disseminated to the PLC. The entities on the database must be assisted by the Consulting Engineer and the Contractor to be compliant with the relevant legislation required to conduct work for a SANRAL project.*
6. *The setup of databases for local labour in the target area will be done with the input and support of the PLC. The final list will be disseminated to the PLC. Entities on the database must be registered on the National Treasury Central Supplier Database (CSD). A system of labour selection from the database must be agreed at the PLC.*
7. *The databases for sub-contracting will be handed over to the Contractor for open tender processes. The labour database will be disseminated to the PLC and handed over to the Contractor to use for recruitment of local labour.*
8. *Tender processes for sub-contracting must be conducted by the Contractor using government principles (e.g., public opening of received bids, announcement of bidders and prices). Winning bidders shall be tabled, by the Contractor, in the PLC meeting for information purposes.*

9. *Appeals to the tender process must be escalated to SANRAL for an independent review which will be facilitated by the Transformation Unit.*
10. *Capability assessments of sub-contractors and suppliers will be done with the input and support of the PLC, prior to the sub-contract tender stage commencing, to identify any deficiencies in skills and experience. For labour, skills assessments will be done at recruitment stage.*
11. *Sub-contractor development support and training must be coordinated and conducted, prior to the sub-contract tender stage commencing, with the input and support of the PLC.*
12. *The PLC may identify works areas that are deliverable by local service providers, and areas where capabilities are not available locally. All works areas where capabilities are not available locally will be imported and local service providers will be given an opportunity to learn.*
13. *The PLC and Consulting Engineer must ensure that formal contracting arrangements between the main contractor and the sub-contractor are in place in all projects.*
14. *Communication will be streamlined through the PLC and used to manage expectations of local business and communities.*

These principles must be applied to facilitate better project level liaison with project Stakeholders and affected Communities. In addition, these principles serve to ensure communication and transparency in the execution of the Works and to facilitate inclusivity in the allocation of projects to benefit black business and local communities.

## **D1002 DEFINITIONS AND APPLICABLE LEGISLATION**

The definitions and legislation listed below informs the requirements of this Section D of the Specifications for Stakeholder and Community Liaison, Targeted Labour employment and Targeted Enterprise sub-contracting.

### **D1002.01 Definitions**

Unless inconsistent with the context, in these specifications, the following words, terms or expressions shall have the meanings hereby assigned to them:

#### **a) Business Coaching**

Business coaching establishes an atmosphere of mutual trust, respect, responsibility, and accountability to motivate the emerging business owner and his team. To that end, the business coach must conduct an ethical and competent practice, based on appropriate professional experience and business knowledge.

#### **b) Community<sup>3</sup>**

South African Citizens, as defined in terms of the South African Citizenship Act, 1995 (Act 88 of 1995), who permanently reside within the Target and Project Area(s) of the project.

#### **c) Contract Participation**

A process by which the Employer implements Government's objectives by setting targets to enhance Targeted Labour and Targeted Enterprises' utilisation and development, which the Contractor shall achieve as a minimum.

#### **d) Contract Participation Goal (CPG)<sup>4</sup>**

<sup>3</sup> CIDB Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Work Contracts, Refer to latest version on [www.cidb.org.za](http://www.cidb.org.za), and as adapted from SANS 10845, Suite for Construction Procurement, 2015.

<sup>4</sup> Adapted from the CIDB Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Work Contracts, Refer to latest version on [www.cidb.org.za](http://www.cidb.org.za), and as adapted from SANS 10845-5:2015 and SANS 10845-8:20SANS 10845, Suite for Construction Procurement, 2015.

- i) In the case of Targeted Enterprises, including manufacturers and suppliers, the amount equal to the value of goods, services and works for which the principal Contractor contracts to engage Targeted Enterprises in the performance of the Contract, expressed as a percentage of the tender value excluding escalation, contingency and value added tax associated with the targeting strategy that is identified in the Specification Data; or
- ii) In the case of Targeted Labour:
  - a. the sum of the wages and allowances, for which the principal Contractor, Sub-contractor, or Targeted Enterprises contract to engage Targeted Labour in the performance of the Contract, expressed as a percentage of the contract amount associated with the targeting strategy that is identified in the Specification Data; or
  - b. the amount equal to the person days worked for which the principal Contractor, Sub-contractors or Targeted Enterprises contract to engage Targeted Labour expressed as a percentage of the total person days worked associated with the targeting strategy that is identified in the Specification Data.

**e) Contract Participation Goal Plan (CPG Plan)**

The plan which outlines how the Contractor intends to achieve the various CPG targets as stated in the Contract Data and includes the detail of the Targeted Enterprise work programme, as well as the contents and value of the work packages. See Annexure X1 Contract Participation Goal (CPG) Plan Format for the CPG Plan template.

**f) Contract Participation Performance (CPP)**

The measure of the Contractor's progress in achieving the CPG.

**g) Contract Skills Development Goals (CSDG)<sup>5</sup>**

The number of hours or head count of skills development opportunities that a Contractor contracts to provide in relation to work directly related to the contract or order up to:

- i) completion in the case of a professional service contract,
- ii) the end of the service period in the case of a service contract, and
- iii) practical completion in the case of an engineering and construction works contract.

**h) Designated Group<sup>6</sup>**

Unless otherwise permissible in terms of procurement regulations or the PPPFA, "Designated Group" means:

- i) black designated groups,
- ii) black people,
- iii) women, or
- iv) people with disabilities.

**i) Domestic Sub-contractors**

A Domestic Sub-contractor is one in whose selection and appointment the Employer traditionally plays no part in other than simply giving consent when that is required under the terms of the main contract. The appointment of the sub-contractor is treated as something entirely for the benefit of Main Contractor and is a purely "domestic matter".

<sup>5</sup> CIDB Standard for Developing Skills through Infrastructure Contracts, Refer to latest version on [www.cidb.org.za](http://www.cidb.org.za).

**j) Final Contract Value**

Final Contract Value as defined under Section D1003.04 - Contract Participation Goal (CPG) of the Specifications, also means Contract Price as defined in FIDIC, sub-clause 1.1.4.2, (excluding CPA, adjustments for reduced payments, Rise and Fall adjustments, penalties, and VAT)

**k) Guidance**

Guidance is anticipating where one might go wrong, or where one is doing a task in a complicated, inefficient, or ineffective way, and giving help, advice, and direction as to how to achieve a better result. Guidance is mostly given by a person in the direct reporting line but can be given by anyone. Guidance is not imparting skills but suggesting ways to improve performance.

**l) Labour**

Persons:

- i) who are employed by the Contractor or a Sub-contractor in the performance of the Contract, and
- ii) whose monthly earnings are derived from hours worked for a fixed hourly rate which is adjusted from time to time by legislation (as a statutory minimum) and the Contractor's or Sub-contractor's employment policies, but
- iii) who are not Targeted Labour as stated in the Specification Data.

The personnel employed by the suppliers of goods and material are not defined as "Labour" for the purposes of this Contract.

**m) Mentoring**

Mentoring is a professional relationship in which an experienced businessperson assists another by giving advice and imparting their knowledge in developing special skills and knowledge that will enhance the less experienced businessperson's professional and personal growth. The objective is to equip the emerging business owner and his team to improve their decision-making skills, being focussed and make positive progress quickly.

**n) Mobilisation Period**

The period between the Commencement Date and the date of Access to Site, which period (duration) is stated in the Contract Data. This part of Section D of the Specifications describes the requirements of the Mobilisation Period.

**o) Project Area**

The area through which the road under construction traverse or which is adjacent to and/or in proximity to project operations.

Based on market research and/or requisite resources availability, Project Areas other than defined above may be identified where preference would be given to Targeted Enterprises for sub-contracting opportunities.

**p) Project Liaison Committee (PLC)<sup>7</sup>**

The Committee that represents the Employer, Engineer, Contractor, project Stakeholders and the Communities affected by the project. It is important to note that:

- i) elected and/or nominated political office bearers shall not be members of the PLC, and

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<sup>7</sup> CIDB Standard for Minimum Requirements for Engaging Contractors and Sub-Contractors on construction Works Contracts, Refer to latest version on [www.cidb.org.za](http://www.cidb.org.za).

- ii) the Engineer and Contractor becomes members of the PLC on their appointment and participate in the Committee within the scope of their respective roles and responsibilities.

**q) Project Liaison Officer (PLO)<sup>8</sup>**

The person who acts as the liaison officer for the project. The PLO facilitates the selection of Targeted Labour to be employed by the Contractor and attends to the day-to-day project, Stakeholder, and Community matters that impact on the parties to the PLC.

**r) Stakeholders<sup>9</sup>**

Any Stakeholder listed in the Employer's Communication Policy who is affected by the Employer's operations in the Project Area(s) and/or who has an interest or concern in the project, either as a decision maker, participant or affected party and may include, amongst others, the following entities:

- i) Relevant Provincial departments.
- ii) Relevant Municipal departments.
- iii) Traditional authorities.
- iv) Community interest groups.
- v) Organised youth representation.
- vi) Organised women representation.
- vii) Organised disabled people representation.
- viii) Other structured community groups such as religion, education, farming, etc.
- ix) Local transport industry forums, e.g., Bus and taxi.
- x) Business sector forums.
- xi) Road user forums.
- xii) Environmental interest groups.
- xiii) Road safety interest groups.
- xiv) Any other recognised relevant and representative structure.

**s) Sub-contractor**

An entity appointed by the Contractor to execute a portion of the Works as defined in the Conditions of Contract under FIDIC subclause 1.1.2.8. This includes both Domestic Sub-contractors and Targeted Enterprises.

**t) Target Area**

The geographic area defined in the Specification Data for Targeted Labour, and which typically are:

- i) one or more Provinces,
- ii) one or more Metropolitan or District Municipalities,
- iii) one or more Local Municipalities,
- iv) one or more Wards that are predominantly located within the Project Area, or
- v) one or more of the areas listed in the definition of Designated Groups.

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<sup>8</sup> CIDB Standard for Minimum Requirements for Engaging Contractors and Sub-Contractors on construction Works Contracts, Refer to latest version on [www.cidb.org.za](http://www.cidb.org.za), CLO definition.

<sup>9</sup> Derived from SANRAL communication Policy, Refer to latest version.

**u) Targeted Enterprise<sup>10</sup>**

A Targeted Enterprise is an entity to which the Contractor sub-contracts a percentage of the contract value as a condition of contract, and which is:

- i) an EME or QSE which is at least 51% owned by black people; or
- ii) an EME or QSE which is at least 51% owned by black people who are youth; or
- iii) an EME or QSE which is at least 51% owned by black people who are women; or
- iv) an EME or QSE which is at least 51% owned by black people with disabilities; or
- v) an EME or QSE which is at least 51% owned by black people who are military veterans; or
- vi) an EME or QSE which is 51% owned by black people living in rural or underdeveloped areas or townships; or
- vii) a cooperative which is at least 51% owned by black people; or

In addition, Targeted Enterprises must be:

- a. CIDB registered where applicable,
- b. registered with National Treasury's Central Supplier Database,
- c. tax compliant prior to award of the sub-contract, and
- d. COIDA compliant prior to award of the sub-contract where applicable.

Targeted Enterprises are also Sub-contractors as defined in the Conditions of Contract under FIDIC subclause 1.1.2.8.

**v) Targeted Enterprise Operations Manager (TE Operations Manager)**

The appointed , staff member or sub-service provider appointed by the Contractor to develop, implement, and monitor the training, development and support of Targeted Labour and Targeted Enterprises as and when required. The Targeted Enterprise Operations Manager also mentors, guides and coaches the Targeted Enterprises.

**w) Targeted Enterprise Monitor**

The Targeted Enterprise Monitor is an independent service provider, or individual, appointed by the Employer's Transformation Unit, to audit the Contractor and his TE Construction Manager's activities with respect to their obligations to Targeted Enterprises.

**x) Targeted Enterprise Procurement Coordinator (TE Procurement Coordinator)**

The staff member or sub-service provider appointed by the Contractor to facilitate the procurement of Targeted Enterprise sub-contractors.

**y) Target Group**

It is a group of entities and/or persons selected from the Designated Group as defined in the in the tender document, and may include both Targeted Enterprises and Targeted Labour.

**z) Targeted Labour<sup>11</sup>**

Persons:

- i) who are unemployed, and
- ii) who are then employed by the Contractor or a Sub-contractor (including Targeted Enterprises) in the performance of this Contract, and

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<sup>10</sup>.

<sup>11</sup> Derived from SANS 10845-7:2015, definition 2.12

- iii) whose monthly earnings are derived from hours worked for a fixed hourly rate which is adjusted from time to time by legislation (as a statutory minimum) and the Contractor's or Sub-contractor's or Targeted Enterprise's employment policies, and
- iv) permanently reside in the Target Area(s) or who are recognized as being residents of the Target Area(s) based on identification and association with, and recognition by, the residents of the Target Area(s), and
- v) who are stated as being Targeted Labour in the Specification Data.

The personnel employed by the suppliers of goods and material are not defined as "Targeted Labour" for the purposes of this Contract.

**aa) Trainee Targeted Enterprise**

A Targeted Enterprise as defined in this Section D of the Specifications, but which is selected and sub-contracted as a Trainee in terms of the Community Development Project associated with this Contract.

**bb) Training**

Training refers to the process of teaching a Trainee, usually in a classroom or simulated work environment situation where principles, theory, knowledge, and skills are taught, and demonstrations are given. Assignments are set to ensure that the Trainee can apply what has been taught. Training is done by a specialist in the subject, and who is qualified and accredited to train. The objective is to improve the competency of the Trainee.

**cc) Training and Skills Development Programme**

The programme which outlines how the Contractor intends to achieve the CSDG targets, as per Section D1010 of the Specifications and in line with the CIDB Standard for Developing Skills through Infrastructure Contracts (refer to latest version on cidb.org.za), by applying the various training methods described in Section D1010 of the Specifications.

**dd) Nominated Subcontractor**

Means the Contractor for the Design Build, Operations and Maintenance of the Toll System for the Operations and Maintenance of the Toll Plazas on National Route N17 as defined in Part C1.

**ee) Main Contractor**

Means the Contractor for the Operations and Maintenance of the Toll Plazas on National Route N17 as defined in Part C1.

**D1002.02 Applicable Legislation, Regulations and Standards**

The following Acts, as amended from time to time, are predominant amongst those which apply to the Road Tolling/Construction Industry and are listed here for reference purposes only:

- a) The Constitution of South Africa.
- b) Public Finance Management Act, 1999 (Act No. 1 of 1999).
- c) Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000) and its latest applicable regulations.
- d) Construction Industry Development Board Act, 2000 (Act No. 38 of 2000).
- e) Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003).
- f) The South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998).
- g) The Skills Development Act, 1998 (Act No. 97 of 1998).



- h) The *Skills Development Levies Act, 1999 (Act no. 9 of 1999)*.
- i) The amended Construction Sector Codes published in Notice 931 of 2017 of Government Gazette No. 41287 on 1 December 2017 by the Department of Trade, Industry and Competition.
- j) The amended Codes of Good Practice published in Notice 303 of 2019 of Government Gazette No. 42496 on 31 May 2019 by the Department of Trade, Industry and Competition.
- k) The Information and Communication Technology (ICT) Sector Codes (Published in Notice 1387 of Government Gazette No. 40407 of 7 November 2016).
- l) Financial Sector (Published in Notice 1325 of Government Gazette No. 41287 of 1 December 2017).
- m) The Integrated Transport Sector Codes (Published in Notice 1162 of Government Gazette No. 32511 of 21 August 2019). The National Small Enterprises Act, 1996 (Act 102 of 1996) as amended.

The following Standards and Practice Notes, as amended from time to time, are applicable in terms of Targeted Labour and Targeted Enterprises and are used fully or portions thereof in this Section D of the Specifications:

- i) SANS 10845: 2015, Parts 5, 7 and 8; and
- ii) CIDB Standard for Contract Participation Goals for Targeted Enterprises and Labour through Construction Works Contracts (refer to latest version on [www.cidb.org.za](http://www.cidb.org.za)).

## **D1003 TARGET GROUP PARTICIPATION**

This part of Section D of the Specifications describes the Employer's requirements for the establishment of Target Group databases from which participants in the project will be selected for employment and sub-contracting.

It also describes the measurement of, and penalties or bonus to be applied, with respect to the CPG as defined in the Specification Data.

### **D1003.01 Objectives of Target Group Participation**

Amongst others, the key objectives of Government are to extend economic opportunities and build entrepreneurial capacity in rural and underdeveloped areas and townships by:

- a) optimising the utilisation of local resources in the Project Area,
- b) developing these local resources in the execution of the project, and
- c) maximising the amount of funds retained within the Project Area.

To give effect to these objectives the Contractor shall, over the full duration of the contract, from site establishment up to the completion of the works:

- i) employ Targeted Labour from the Target Area(s) as stated in the Specification Data, and
- ii) sub-contract Targeted Enterprises as stated in the Specification Data, and
- iii) give preference to Targeted Enterprises which are from rural and underdeveloped areas and townships within the Project Area(s).

### **D1003.02 Targeted Labour Database**

A system for the recruitment of Targeted Labour shall be agreed with the PLC prior to the commencement of labour recruitment. This system shall be fair and transparent.

Based on the system for recruitment, a Targeted Labour Database shall be compiled by the Contractor, with the assistance of the PLO and the input and support of the PLC, for the Target Area(s) as stated in the Specification Data. If necessary, the assistance of the Department of Labour may be called upon to provide a labour database of labourers with the required skills and within the required designated groups and Target Area. Once the Database has been

disseminated to the PLC it shall be utilised to facilitate the selection of Targeted Labour as per the resources and skills required by the Contractor during the different construction stages.

The Targeted Labour Database shall be updated as and when required to reflect new employment seekers in the labour market.

Only Labour recruited from the Targeted Labour Database will be measured for Contract Participation Performance (CPP).

### **D1003.03 Targeted Enterprise Database**

The Contractor shall, with the assistance and inputs of the PLC, compile a Targeted Enterprise Database from which Targeted Enterprises shall be sub-contracted to construct portions of the work as described in this part of Section D of the Specifications.

#### **a) Market Analysis and Requisite Resources Availability Audit**

The Contractor shall conduct a market analysis and requisite resources availability audit to determine the availability, expertise, abilities, and proficiency of Targeted Enterprises in the Project Area.

To inform the market analysis and requisite resources availability audit, the Contractor shall, as a minimum, use the National Treasury's Central Supplier Database (CSD) which can be obtained from the Employer's Supply Chain Management department via the Project Manager, as well as the CIDB contractor database (if applicable).

The market analysis and requisite resources availability audit, and all updates thereof for the duration of the Contract, shall be submitted to the Engineer and the Employer's Project Manager in a format acceptable to the Employer.

Following the market analysis and a requisite resources availability audit, the Contractor shall apply the CPG Target Group criteria in the Specification Data to compile a **preliminary** Targeted Enterprise Database (see D1003.03(c) below).

#### **b) Call for an Expression of Interest**

In addition to the CSD and the CIDB database (for works where CIDB registration is required), the Contractor shall call for an expression of interest from Targeted Enterprises in the Project Area. The call for an expression of interest shall outline the anticipated eligibility, functionality, preference, and compliance criteria, as well as the anticipated Works content.

#### **c) Preliminary Targeted Enterprise Database**

Based on the information obtained from the CSD, CIDB and the call for an expression of interest, the Contractor shall compile a Preliminary Targeted Enterprise Database.

The purposes of the Preliminary Targeted Enterprise Database are:

- i) for the Contractor to determine if the required resources and skills to execute the identified Targeted Enterprise work packages are available in the Project Area(s),
- ii) for the PLC to verify that Targeted Enterprises on the Preliminary Targeted Enterprise Database are authentic in terms of the Specification Data and other Database criteria, and
- iii) for the PLC to alert prospective Targeted Enterprises that are not on the Preliminary Database of the opportunity.

Based on the market analysis and requisite resources availability audit, and the information obtained from the call for an expression of interest, additional criteria for the Preliminary Targeted Enterprise Database may be tabled by the PLC to the Contractor to ensure Target Group participation as intended by the Employer.

**d) Final Targeted Enterprise Database**

Once the Preliminary Targeted Enterprise Database has been disseminated to the PLC, the Contractor shall invite Targeted Enterprises to tender for the Targeted Enterprise work packages. The Preliminary Targeted Enterprise Database shall remain a “live” database until the day of tender closure when a print-out of the CSD, based on the Database criteria, shall become the **Final** Targeted Enterprise Database for the tender and shall be disseminated to the PLC.

Any Targeted Enterprise may respond to the invitation to tender, but preference shall be given to those Targeted Enterprises that satisfy the tender criteria.

The Targeted Enterprise Database shall be updated at every instance that a new sub-contract tender or group of similar sub-contract tenders are to be let for Targeted Enterprise work packages.

Targeted Enterprises within the Project Area shall be encouraged and assisted to register on the CSD and to become compliant with all other statutory requirements.

**D1003.04 Contract Participation Goal (CPG)**

The CPG is the monetary value of the participation targets set by the Employer for Targeted Labour and Targeted Enterprises expressed as a percentage of the Final Contract Value. The participation targets comprise of the following:

% Targeted Labour (TL<sub>Total%</sub>) = the sum of the % Targeted Labour employed by the Contractor, Sub-contractors, and Targeted Enterprises.

% Targeted Enterprises (TE<sub>Total%</sub>) = the % Targeted Enterprises, including the % Targeted Labour employed by Targeted Enterprises.

While the individual participation targets, i.e., TL<sub>Total%</sub> and TE<sub>Total%</sub> must be met, the total CPG (CPG<sub>Total</sub>) is not the sum thereof, but are calculated as follows:

CPG<sub>Total</sub> = Final Contract Value x [TL<sub>Total%</sub> + (TE<sub>Total%</sub> - Targeted Labour employed by the Targeted Enterprises)]

Where:

Final Contract Value = the total value of the Contractor’s final certified work measured at the date of issue of the Taking-Over Certificate. The Final Contract Value includes the value of scheduled work and extra work but excludes any Contract Price Adjustment and adjustments for reduced payments, Rise and Fall, Retention Money, Penalties and VAT.

The Contractor shall strive to distribute and implement the participation targets and opportunities equally and continuously over the duration of the Contract. Where the Contractor deems such an equal and continuous distribution of the participation targets to be unachievable, he shall provide reasons and motivate it clearly in the preliminary CPG Plan submitted with the tender document.

Both the Targeted Labour and Targeted Enterprise participation targets may consist of sub-targets which are stipulated in the Specification Data, clause D1003. The Contractor is required to achieve these individual sub-targets. If the Contractor fails to achieve any one of the individual sub-targets and does not substantiate that such failure is due to quantitative underruns, the elimination by the Employer of items contracted to targeted enterprises, or any other reason beyond the Contractor’s control which may be acceptable to the Employer, penalties shall apply as stated in Section D1003.05 of the Specifications, and as provided for in clause 8.7 of the FIDIC Conditions of Contract.

The value of the Provisional Sum scheduled under item D10.05 will not necessarily make up the full value of the work required to meet the minimum target set by the Employer for Targeted Enterprises. It is the Contractor's responsibility to assess the work required to meet the targets and, if necessary, to engage additional Targeted Enterprises to execute work on the Contract as well to ensure that the minimum targets are achieved.

### **D1003.05 Contract Participation Performance (CPP)**

The CPP is the monetary value of the Contractor's actual progress towards achievement of the CPG calculated as follows:

CPP = CPG<sub>Actual</sub>  
 = total monetary value (excluding VAT) of Targeted Labour employed by the Contractor  
 + total monetary value (excluding VAT) of Targeted Enterprises contribution, including Targeted Labour employed by the Targeted Enterprises.

The Contractor's CPP shall be monitored monthly to determine the extent to which it is striving to achieve the CPG. The basis of monitoring shall be a comparison of the actual expenditure on Targeted Labour and Targeted Enterprises with the planned expenditure for Targeted Labour and Targeted Enterprises as per the accepted CPG Plan. Monthly returns, in the format required by the Employer, shall be submitted by the Contractor with each interim Payment Certificate.

To assist in the measurement of the CPP the Contractor shall include the envisaged CPG programme in its initial contract programme which is to be submitted within 28 days after the Commencement Date. The CPG programme shall be updated in the accepted construction programme on acceptance of the CPG plan and with every subsequent revision.

As an incentive to encourage the Contractor to exceed the CPG, a bonus is offered, measured as follows:

#### **a) CPP Bonus**

The bonus = 0.25 x (CPP – CPG<sub>Total</sub>)

Any bonus due (or portion thereof) shall be calculated on the Final Contract Value (excluding CPA). No bonus shall apply if either the Targeted Labour, Targeted Enterprises and/or any individual sub-targets for Target Groups are not reached.

#### **b) CPP Penalties**

Conversely, failure to reach either the CPG or any individual Target Group targets shall render the Contractor liable for a penalty as prescribed in clause 10.7 [Failure to Reach Production Outputs] of the FIDIC Conditions of Contract unless there are compelling reasons why the target or sub-targets could not be achieved as stipulated in Section D1003.04 of the Specifications. Penalties for Targeted Labour and for Targeted Enterprises shall be calculated as follows:

Penalty Targeted Labour = 0.5 x ((TL – TG) + Sum (TL<sub>n</sub> – TG<sub>n</sub>) - 1.2 x L dp)

Where:

n = Each lowest order sub-group of Targeted Labour stipulated in the Specification Data.  
 TL = Monetary value of the Targeted Labour calculated at the percentage stipulated in the Specification Data applied to the final contract value (excluding VAT).  
 TG = Cumulative monetary value of Targeted Labour employed on the contract by the Contractor and all Sub-contractors.  
 L dp = Cumulative monetary value of black Disabled Persons employed on the Contract by the Contractor and all Sub-contractors.  
 (TL<sub>n</sub> - TG<sub>n</sub>) = The monetary values calculated unless if any calculated value is negative, then it shall be a zero value.

Penalty Targeted Enterprises =  $0.5 \times ((TE - TGE) + \text{Sum}(TE_n - TGE_n) - 1.2 \times TE_{mv} - 1.2 \times TE_{dp})$

Where:

$n$  = Each lowest order sub-group of Targeted Enterprise stipulated in the Contract Data.  
TE = Monetary value (excluding VAT) of Targeted Enterprises calculated at the percentage stipulated in the Specification Data applied to the final contract value (excluding VAT).  
TGE = Cumulative monetary value (excluding VAT) by Targeted Enterprises sub-contracted to the contract by the Contractor and 50% of the cumulative monetary value (excluding VAT) by Targeted Enterprise suppliers of goods and/or services.  
TE<sub>mv</sub> = Cumulative monetary value (excluding VAT) by Targeted Enterprises being majority owned by black Military Veterans, sub-contracted to the Contract by the Contractor.  
TE<sub>dp</sub> = Cumulative monetary value (excluding VAT) by Targeted Enterprises being majority owned by black Disabled Persons, sub-contracted to the Contract by the Contractor.  
( $TE_n - TGE_n$ ) = The monetary values calculated unless any calculated value is negative, then it shall be a zero value.

The total Penalty value shall be the sum of the Targeted Labour and Targeted Enterprises Penalty values unless the total Penalty value is negative then it shall be a zero value.

Interim penalty valuations, based on the accepted CPG Plan, shall be calculated to interim Payment Certificate values (excluding VAT) to establish the anticipated outcome, and to plan corrective actions for non-adherence to the CPG Plan.

Interim penalty valuations shall not be applied to the interim certificate value, but the Contractor shall by notice be placed on terms to correct as prescribed in sub-clause 15.1 of the FIDIC Conditions of Contract. Failure to correct by completion of the Contract will lead to an Employer's Claim in terms of sub-clause 2.5 of the FIDIC Conditions of Contract.

Any Penalty payable shall be calculated on and applied to the Final Contract Value.

#### **D1003.06 Accredited Registration**

The CPP for Targeted Enterprises shall only be accepted if the respective Targeted Enterprises comply fully with the definition of a Targeted Enterprise, and documentary evidence to support the claim lodged with the Engineer before the work, goods or service may be considered as having been performed by a Targeted Enterprise. The responsibility for producing evidence of the respective documentation shall rest with the Contractor.

The Contractor shall assume responsibility for the compilation and maintenance of comprehensive records detailing each Targeted Enterprise's progress.

#### **D1003.07 Contractor's Responsibility**

In terms of the Conditions of Contract, all Targeted Labour recruitment and employment and Targeted Enterprises sub-contracting, as well as its associated risks, shall remain the sole responsibility of the Contractor.

The Employers CPG requirements, and the compulsory utilisation of project specific Targeted Labour and Targeted Enterprises databases, shall not relieve the Contractor of its obligations under the Contract and shall not attract any liability to the Employer.

### **D1004 STAKEHOLDER AND COMMUNITY LIAISON AND SOCIAL FACILITATION**

This part of Section D of the Specifications describes the Employer's requirements with respect to Stakeholder and Community liaison and social facilitation. It also describes the roles and responsibilities of the Project Liaison Committee (PLC) and the Project Liaison Officer (PLO).

#### **D1004.01 Purpose of Stakeholder and Community Liaison**

To give effect to the need for transparency and inclusion in the process of delivering services, the Contractor shall liaise with the project Stakeholders and affected Communities for the duration of the Contract's life cycle. This shall be achieved through structured engagement with the PLC which was established by the Employer for this purpose.

#### **D1004.02 Contractor's Responsibilities in Stakeholder and Community Liaison**

The Contractor shall have the following general responsibilities in the Stakeholder and community Liaison process:

- a) Stakeholder and Community engagement shall be executed based on the Employer's social facilitation principles and processes described in this Section D of the Specifications.
- b) The Contractor shall make use of the PLC as the official communication channel, and utilise it to facilitate harmonious relationships, with project Stakeholders and affected Communities.
- c) PLC members, to which the Contractor is a party, shall be held accountable to disseminate project information discussed at the PLC meetings to the entities that they represent.
- d) As a party to the PLC, the Contractor shall delegate from among his site personnel a responsible person to participate in the PLC and its business.
- e) The Contractor shall provide the PLC with any assistance and information that it requires to execute its duties, which amongst others, include training, providing a meeting venue on site, provide Target Group reports, etc.

It is important to note that in terms of the Conditions of Contract, all Targeted Labour recruitment and employment, and Targeted Enterprises' selection and sub-contracting, as well as its associated risks, shall remain the sole responsibility of the Contractor.

The Contractor shall take cognisance of the Employer's PLC and PLO Forms, attached as Annexure X2 Project Liaison Committee and Project Liaison Officer Forms, which shall be provided to the Contractor by the Engineer. While the Employer holds its own staff accountable for the deliverables listed in the checklist, the Contractor and the Engineer shall assist the Employer in accomplishing the deliverables.

The Employer's establishment of the PLC and the Engineer providing a PLO to the Contractor shall not relieve the Contractor of its obligations under the Contract and shall not attract any liability to the Employer.

#### **D1004.03 Project Liaison Committee (PLC)**

The PLC is the official communication channel through which the Employer, Engineer, Contractor, and project Stakeholders and affected Communities communicates on project matters. This platform is also used to communicate the impact that the project has or may have on project Stakeholders and the affected Communities. This part of Section D of the Specifications describes the general processes pertaining to the PLC, as well as its role and responsibilities.

This contract may not have a stand-alone PLC as required in terms of Item D1004. For that purpose, it will be incorporated into Employer's established PLC for the N17 route between Gauteng (Johannesburg) and Mpumalanga (Ermelo). The Contractor is obliged to participate in the PLC activities related or having a direct bearing on this contract and fulfil the Contractor's responsibilities as stipulated below.

Reference to CIDB grading shall apply to work activities where CIDB registration is a requirement such as civil construction, electrical works and building works.

**a) Establishment of the PLC**

A PLC has either been established prior to commencement of the Contract or shall be established as soon as possible by the Employer. The PLC consists of the Employer, Engineer, Contractor, and representatives of project Stakeholders and affected Communities. To ensure that all relevant Stakeholders are represented in the PLC, the Employer did, or will, consult with the Executive Mayor's office, as well as with the LED Department of the Local Municipalities in the Project Area. Once, the PLC has been established, the Employer's further Stakeholder engagement activities shall not prevent the Contractor from continuing with construction.

Typical Stakeholder representation on the PLC may include:

- i) A PLC member from the relevant RRM PLC.
- ii) Local Municipality LED Office.
- iii) Traditional leadership representation.
- iv) Forums representing people with disabilities.
- v) Forums representing women.
- vi) Forums representing youth.
- vii) Forums representing business sector.
- viii) Forums representing transport sector.
- ix) Any other Stakeholder forum/organisation recognised by the Employer and the Local Municipality's LED Office.

Every forum/organisation/constituency shall have one (1) representative on the PLC, which representation shall be confirmed by a duly signed nomination form.

It should be noted that the PLC is not a political platform. While Councillors may be invited to some PLC meetings, they may not be PLC members and hence, will not have voting rights when attending a PLC meeting.

**b) Seating Allowance for PLC Members**

PLC membership is voluntary and PLC members shall not be remunerated for any time spent or work done associated with representing their constituency on the PLC.

Provision for the cost of liaison, social facilitation and PLC support has been made under pay-item D10.02(a). This pay-item provides for the Contractor's cost incurred in executing his responsibilities w.r.t. Stakeholder and Community liaison.

This pay-item may also be utilised to pay an allowance to PLC members for actual costs incurred in executing their PLC duties (other than time or work done related). The Contractor will determine and table to the PLC a realistic seating allowance which will be substantiated by an outline of the anticipated actual costs envisaged to be incurred by PLC members.

The seating allowance shall be increased annually based on the CPI figure contained in Table B2 of Statistical Release P0141 by StatsSA.

**c) Induction of the PLC**

The Employer shall conduct an induction meeting with the PLC to acquaint PLC members with the following information:

- i) SANRAL's Horizon 2030 Strategy.
- ii) SANRAL's Fourteen Point Plan.
- iii) The role and responsibilities of PLC members.
- iv) SANRAL's Transformation Policy.
- v) How the Transformation Policy impacts on SMMEs.
- vi) Relevant details of the Contract, e.g.

- a. Start and end dates
- b. Important milestones
- c. CPG targets
- d. Envisaged Targeted Enterprise packages
- e. Envisaged work for other SMMEs (non-CPG).

**d) Rules of Engagement for the PLC**

In the execution of their duties, members of the PLC shall adhere to the undertakings listed below and the Contractor shall inform the Engineer of any transgression of these undertakings.

i) General Matters and Membership

- a. A PLC member may not be a politically elected representative and political party representation will not be allowed in the PLC.
- b. Ward Councillors may interact with the project team through the Mayor's Office.
- c. If required, and in consultation with the Employer, a Political Steering Committee (PSC) may be established to address political matters. A PSC will only be established where the Project Area traverse over more than one municipal area.

ii) Term of Office for the PLC

- a. The duration of PLC members' participating in the PLC (term of office) shall depend on the duration of the project.
- b. If the Employer finds the performance of a PLC member to be below expectation or their conduct to be unacceptable, the affected member will be discharged from their obligations and a new nomination process shall commence.

iii) Targeted Enterprise and Targeted Labour

PLC members shall:

- a. ensure that they, or companies in which they hold equity, will not tender on the Contract for any work or sub-contract that may be issued. Should they tender, this will be treated as a conflict of interest and the tender proposal submitted will not be evaluated.
- b. not have private or business interests in any of the sub-contract tenders tabled to the PLC or considered in this Contract.
- c. shall recuse themselves from discussions that deal with a sub-contract tender if any other member is of the opinion that a member's participation in deliberations, which is rightly or wrongly construed as improper or irregular, may lead to the award of a sub-contract to a tenderer known to the member or to the member itself.
- d. recuse themselves from the operations of the PLC following a situation as described in paragraphs ii) above and shall cease to be a PLC member for this Contract.
- e. during the tender and tender evaluation processes, neither deliberately favoured nor prejudiced a person or tenderer, as intended, or contemplated in treasury Regulation 16, A8.3 (a), (b) & (c).
- f. ensure that no conflict of interest arises from members' involvement in the PLC and potential involvement in targeted labour recruitment and/or targeted enterprises procurement and/or any other supplier/sub-contractor/service provider procurement or involvement in the contract.



- iv) Confidentiality
- a. PLC members shall accept that all information, documentation, and decisions regarding any matter serving before the PLC are confidential and undertake not to communicate decisions or discussions of PLC meetings to external or internal parties unless so directed and approved by the Project Manager.
  - b. Information for public dissemination shall be clearly indicated by the committee to ensure that sensitive information is only disseminated to the correct audience.

- v) Removal from Office
- a. PLC members who violate the provisions of these Rules of Engagement for PLCs will be removed from their role as a PLC member at the sole discretion of the Employer.
  - b. The Employer reserves the right to recover any costs from PLC members whose actions can be regarded as detrimental to the Employer or to the execution of the project.
  - c. The Employer also reserves the right to recommend criminal prosecution if the offence warrants such action.
  - d. The Employer reserves the right to dissolve the entire PLC should it believe that such an action is in its best interest, or that of the project. The Employer will not be obliged to reconstitute the PLC if such a dissolution occurs.

**e) Responsibilities and Duties of the PLC**

The PLC shall execute specific duties during the design and construction phases of the project.

Some of the PLC's duties during the design and construction stages overlap and hence, for completeness, a description of the PLC's duties in both project stages is provided here.

The PLC shall execute the following duties:

- i) Project Design Stage
- a. Meet as often as required to discuss and resolve the project's design stage matters which are of interest or concern to the parties to the PLC.
  - b. Peruse the Project Liaison Committee duties outlined in this Section D of the Specifications and agree on the duties of, and procedures to be followed by, the PLC to fulfil its duties.  
**Note:** The principles outlined in this section shall not be amended, but duties and procedures may be altered to be project specific and to improve the functionality of the PLC.
  - c. Act in accordance with the agreed terms of reference for the PLC.
  - d. Inform the Employer's Project Manager of any training that project Stakeholder and affected Community representatives of the PLC require to execute their duties.
  - e. Assist the Engineer to source suitable candidates, based on the Employer's qualifying criteria, for the position of PLO.
  - f. Observe and verify that the qualifying criteria and procedures applied by the Engineer to select and employ the PLO were executed in a fair and transparent manner and were within the prescripts of the relevant labour legislation and regulations.
  - g. Assist the Engineer to identify the project's Target and Project Area(s) from which Targeted Labour and Targeted Enterprises could be employed and sub-contracted, respectively.

- h. Assist the Engineer to identify the project's Target Groups for inclusion in the Tender Documents and provide input and support the identified Target Groups.

ii) Project Construction Stage

- a. Meet formally prior to the Employer's monthly site meeting, or as may be required, to discuss and resolve project matters which are of interest or concern to the parties to the PLC.
- b. Assist the Contractor to establish the selection criteria and process to employ Targeted Labour
- c. Assist the Contractor to identify the eligibility, functionality, preference, and compliance criteria to select and sub-contract Targeted Enterprises.
- d. Provide input and support for the Databases compiled by the PLO and the Contractor from which Targeted Labour will be selected and employed and Targeted Enterprises will be sub-contracted, respectively.
- e. Verify that the criteria and methodologies applied by the Contractor to select and employ Targeted Labour and sub-contract Targeted Enterprises are executed in a fair and transparent manner and are within Government legislation and regulations and the Employer's Policies.
- f. Verify that the conditions of employment and the conditions of sub-contracting, in the employment of Targeted Labour and sub-contracting of Targeted Enterprises are applied in a fair and transparent manner and according to the Employer's employment and sub-contracting requirements.
- g. Make recommendations to the Contractor on the training needs, eligibility criteria and selection criteria for the provision of training to Targeted Labour, Targeted Enterprises, Designated Groups, project Stakeholders and the affected Communities.
- h. Verify that training and skills development programmes, which the Contractor committed to, are implemented, and executed as approved and intended.
- i. Inform the entities whom they represent of any project matters which the respective party to the PLC wishes to communicate with each other.
- j. Inform the entities whom they represent of any project matters that are impacting or may impact, either positively or negatively, on the respective parties to the PLC.
- k. Inform the Contractor of Stakeholder and/or Community requests and/or needs, which could possibly be addressed within the project's Scope of Work.
- l. Inform the Employer's Project Manager, Engineer, and Contractor of any road safety concerns within the Project Area(s) and advise them of possible mitigating measures and/or road safety programs that will be most suitable for acceptance by the affected Communities to promote road safety.
- m. Assist parties to the PLC to agree on a dispute resolution mechanism to resolve any disputes that may arise between the parties to the PLC.
- n. Assist parties to the PLC to liaise with their respective entities to resolve any disputes amongst the parties which may occur due to the project.

**f) PLC Meetings**

i) Frequency

- a. Meetings will be conducted monthly or as required by the Stakeholders or the project matters.

ii) Notice of Meetings

- a. The notice of the PLC meeting shall be given at least seven (7) calendar days prior to the meeting date.

- b. Where meetings have been diarised over a period by the PLC, it shall be the duty of each PLC member to ensure his/her attendance on the set dates.
  - c. Where a PLC member has missed any meeting, he/she bears the onus of establishing the date and venue of the next meeting.
- iii) Venue
- a. The venue for PLC meetings shall be the project site office or any other venue agreed to by the members of the PLC and approved by the Employer' Project Manager.
  - b. During the COVID-19 lockdown, or any other lockdown as announced by government, the meetings shall be held on an online platform such as WhatsApp, MS Teams, Zoom or similar.
- iv) Agenda
- a. An agenda shall be made available or displayed to all participants at the commencement of such meetings or the minutes of the previous meeting will serve as the agenda of such meetings.
  - b. The agenda shall not be amended without prior approval from the Employer's Project Manager.
- v) Chairperson
- a. PLC meetings shall be chaired by the Employer which will typically be the Employer's Project Manager, or a SANRAL staff member, with decision-making delegation, or the Engineer. The Chairperson shall:
    - i. chair all meetings of the PLC,
    - ii. co-ordinate all the activities of PLC,
    - iii. ensure that members are fulfilling their tasks as assigned by the PLC,
    - iv. see to the execution of decisions taken by the PLC,
    - v. ensure the validity of members' claim for allowance,
    - vi. ensure compliance of all activities of the PLC with current rules, law and general SANRAL policy, and
    - vii. be a co-signatory to all official documents of the PLC.
- vi) Secretariate
- a. The Engineer's staff shall provide a secretarial service to take minutes of PLC meetings.
  - b. Secretarial support other than taking minutes at PLC meetings shall be provided by the PLO.
- vii) Quorum
- a. The quorum for PLC meetings shall be constituted by 50%+1 ratio excluding co- opted members.
- viii) Apologies and Non-attendance
- a. Apologies shall be in writing except in emergency where the member apologising cannot communicate the apology in writing.
  - b. Apologies may be sent through any media agreed to prior by the PLC for example through SMS or WhatsApp messaging or similar application.
  - c. The organization, represented by a member who fails to attend three (3) consecutive meetings without an apology, will be informed in writing and asked to nominate a replacement member.

- ix) Language
  - a. The meetings will be conducted in English to enable all participants at the meeting to understand the discussions of the meeting.
  - b. However, care and consideration must be given to provide non-English speakers an opportunity to participate. Therefore, where desirable, any of the 11 official languages may be used to conduct the meeting. If another language other than English is used, the minutes of the meeting will need to be transcribed, translated, and recorded in English.
- x) Other
  - a. The PMT shall provide a finger lunch for PLC members at PLC meetings.

#### **D1004.04 Project Liaison Officer**

The PLO facilitates the selection and employment of Targeted Labour and coordinates communication between the members of the PLC to address the day-to-day project, Stakeholder, and Community matters that impact on the parties represented in the PLC.

##### **a) Appointment of the PLO**

The Engineer appoints the PLO in accordance with the Employer's criteria for a PLO. The appointment of the PLO must be acknowledged and supported by the PLC.

Although the PLO provides social facilitation support to the Contractor, the PLO shall report to the Engineer or his delegated representative, e.g., the Resident Engineer.

##### **b) Duties of the PLO**

The PLO shall execute specific duties during the design and construction phases of the project. These duties include the following:

- i) Except for taking the minutes of PLC meetings which is a duty of the Engineer, the PLO shall provide a secretariat function to the PLC which includes, amongst others, the following:
  - a. Schedule meetings.
  - b. Compile meeting agendas.
  - c. Compile document packages for meetings.
  - d. Distribute minutes of meetings.
  - e. Assist representatives of project Stakeholders and affected Community to formulate their communication to the PLC in writing.
  - f. Distribute written communication between the parties to the PLC.
  - g. Keep records of all PLC correspondence and documentation; and
  - h. Provide any other reasonable secretariat function required by the PLC.
- ii) Attend all PLC meetings to report on the day-to-day project, Stakeholder and Community matters that impact on the parties to the PLC.
- iii) Attend all monthly project site meetings to report on the day-to-day project, Stakeholder and Community matters that impact on the parties to the PLC.
- iv) Attend any other meetings related to the project and in which any of the project Stakeholders, affected Communities, Targeted Labour and Targeted Enterprises are involved.
- v) Maintain a full-time presence on site to monitor and address the day-to-day project, Stakeholder and Community matters that impact on the parties to the PLC.
- vi) Maintain a full-time presence on site to assist the parties to the PLC in the day-to-day liaison with each other.

- vii) Assist the Engineer and the Contractor to disseminate information to PLC members such as:
  - a. the basic Scope of the Works and how it will affect the Community,
  - b. the project programme and regular progress updates,
  - c. the anticipated employment and sub-contracting opportunities,
  - d. the project programme as it pertains to the employment of Targeted Labour and sub-contracting of Targeted Enterprises,
  - e. Occupational Health and Safety precautions, and
  - f. any other information relevant to project Stakeholders and the affected Communities.
- viii) Be well acquainted with the contractual requirements as it pertains to Targeted Labour employment and training.
- ix) Assist the PLC to establish and agree the criteria to follow when selecting and employing Targeted Labour.
- x) Assist the Engineer and the Contractor in their resources and skills audits by providing a coordinating function between the Engineer, the Contractor, project Stakeholders and the affected Communities.
- xi) Ensure that the Contractor compiles the Targeted Labour databases based on the eligibility and selection criteria and that he updates it as and when required.
- xii) Coordinate the selection and employment of Targeted Labour based on the agreed eligibility and selection criteria and based on the Contractor's labour and skills requirements.
- xiii) Ensure that each Targeted Labourer enters an employment contract which adheres to current and relevant Labour legislation.
- xiv) Ensure that each Targeted Labourer understands the conditions of his/her employment contract, with an emphasis on the employment start date, end date and wages payable.
- xv) Identify and inform the Contractor of any relevant training required by the Targeted Labour.
- xvi) Attend all disciplinary proceedings to ensure that hearings are fair and conducted in accordance with the current and relevant Labour legislation.
- xvii) Be proactive in identifying project Stakeholder and affected Communities' (including Targeted Labour and/or Targeted Enterprise Sub-contractor), requirements, disputes, unrest, strikes, etc., and bring it to the attention of the PLC.
- xviii) Assist the parties to the PLC to resolve any disputes, which may occur due to the project.
- xix) Other than the document records to keep as mentioned above, keep record of all other documents and processes pertaining to the employment of Targeted Labour.
- xx) Produce and submit a monthly report to the PLC on PLC and other meetings attended by the PLO, as well as on Targeted Labour employment, and project Stakeholder, affected Community and any other project matters that impact on the parties to the PLC.

## **D1005 MOBILISATION PERIOD**

The Mobilisation Period is defined in Section D1002 of the Specifications. This Section describes the requirements of the Mobilisation Period.

### **D1005.01 Purpose of the Mobilisation Period**

The Mobilisation Period was introduced as an aid to the Contractor to:

- a) become acquainted with the Stakeholder and Community liaison requirements of the Contract as prescribed in this Section D of the Specifications,
- b) allow for the Contractor's planning to obtain the CPG as required in the Specification Data,
- c) allow for the Contractor's planning to obtain the Contract Skills Development Goals (CSDG) as required in Section D1010 of the Specifications,
- d) follow the processes prescribed in this Section D of the Specifications to employ the initially required Targeted Labour and enter the first sub-contracts with Targeted Enterprises, and
- e) provide the training required by Targeted Labour and Targeted Enterprises to commence with the construction of the Works.

Access to site for the Commencement of the Works shall thus only be issued once the following deliverables have been submitted and/or completed by the Contractor:

- i) Submission of the CPG Plan, followed by acceptance of the Engineer.
- ii) Submission and the Training and Skills Development Programme, followed by acceptance of the Engineer.
- iii) Appointment of the initial Targeted Enterprise sub-contractors.

#### **D1005.02 Duties of the Contractor**

During the Mobilisation Period, the Contractor shall execute the following duties:

##### **a) Compile a CPG Plan**

The Contractor shall compile an acceptable CPG Plan, which sets out how he intends to achieve the various CPG targets as stated in the Specification Data. The Contractor shall distribute and implement the participation targets and Targeted Enterprise work opportunities equally and continuously over the duration of the Contract, i.e., from site establishment to completion of the Works. Where the Contractor deems such an equal and continuous distribution of the participation targets to be unachievable, he shall provide reasons and motivate it clearly in the CPG Plan.

The CPG Plan shall provide the detail of the Targeted Enterprise work programme, as well as the contents and value of the work packages. See Annexure X1 Contract Participation Goal (CPG) Plan Format for the CPG Plan format.

The Targeted Enterprise work programme shall be in line with the Works Programme and once the CPG Plan has been accepted by the Engineer, it shall be captured in the Works Programme.

The Employer's Project Manager and the Engineer shall monitor progress and adherence to the CPG Plan in the same manner as they would monitor the Works Programme.

##### **b) Compile a Training and Skills Development Plan**

The Contractor shall compile an acceptable Training and Skills Development Plan, which sets out how he intends to achieve the various CSDG targets as per Section D1010 of the Specifications.

The Training and Skills Development Plan shall provide the detail of the training methods selected for implementation as described in Section D1010 of the Specifications and shall include an execution programme for acceptance by the Engineer, which shall demonstrate its correlation with the Works Programme.

The Employer's Project Manager and the Engineer shall monitor progress and adherence to the Training and Skills Development Plan in the same manner as they would monitor the Works Programme.

##### **c) Sub-contracting of Targeted Enterprises**

During the Mobilisation Period the Contractor shall execute the following duties w.r.t. the sub-contracting of Targeted Enterprises:

- i) Liaise with the Employer's Project Manager, the Engineer and the PLC to structure and finalise the work packages to be sub-contracted to Targeted Enterprises.
- ii) Liaise with the Employer's Project Manager, the Engineer, and the PLC to determine the Targeted Enterprise Database criteria for the sub-contracting of Targeted Enterprises.
- iii) Compile the Targeted Enterprise Database(s) for input and support by the PLC.
- iv) Undertake a skills audit of the Targeted Enterprises which appear on the Targeted Enterprise Database(s).
- v) Based on the skills audit, and in consultation with the PLC, identify the pre-tender training requirements of Targeted Enterprises.
- vi) Provide an opportunity to Targeted Enterprises to receive the identified pre-tender training.
- vii) Tender the initial work packages and sub-contract the first group of Targeted Enterprises for commencement of the Works.

**d) Employment of Targeted Labour**

During the Mobilisation Period the Contractor shall execute the following duties w.r.t. the employment of Targeted Labour:

- i) Liaise with the PLC and the PLO on the compiled Targeted Labour Database(s) for the employment of Targeted Labour.
- ii) Undertake a skills audit of the Targeted Labour which appear on the Targeted Labour Database(s).
- iii) Based on the skills audit, and in consultation with the PLC, identify the training requirements of Targeted Labour to enhance their employability.
- iv) Provide an opportunity to eligible Targeted Labour to receive the identified training to enhance their employability.
- v) Select and appoint the first group of Targeted Labour for commencement of the Works .

**e) Training Requirements**

The Contractor will not be able to address all the training requirements identified for Targeted Labour and Targeted Enterprises during the Mobilisation Period and it is accepted that training will take place over the duration of the Contract.

The training provided to both Targeted Enterprises and Targeted Labour during the Mobilisation Period shall focus on the activities and/or skills required for the commencement of the Works and shall include the mandatory Occupational Health and Safety training.

## **D1006 THE ROLE OF THE ENGINEER**

The role and responsibilities of the Engineer are clearly described in the Conditions of Contract. This section elaborates on the Engineer's duties with respect to Stakeholder and Community Liaison, Targeted Labour Employment and Targeted Enterprise sub-contracting.

Together with the Employer and the Contractor, the Engineer is also a party to the PLC and hence, is co-responsible for successful project Stakeholder and Community liaison.

In addition, the Engineer shall play a supporting role to the Contractor in the successful implementation of the Employer's Targeted Labour and Targeted Enterprise utilisation and development goals.

#### **D1006.01 Duties During the Design Phase**

During the design phase, the Engineer undertook a preliminary skills and resources audit of the Targeted Enterprises in the Project Area. The purpose of the audit was to:

- a) obtain an understanding of the Community's skills, both academically and occupationally,
- b) obtain an understanding of the resources within the Community, i.e., Targeted Enterprise availability and capabilities,
- c) establish the CPG targets for Targeted Enterprises and Targeted Labour for inclusion of the Specification Data; and
- d) identify tender and other relevant training to be offered to Targeted Enterprises and Targeted Labour to prepare them for tendering and to enhance their employability.

#### **D1006.02 Duties During the Design Build Operate Phase**

To implement the Employer's Targeted Labour and Targeted Enterprise goals the Engineer shall provide support to the Contractor by executing the following duties:

##### **a) Targeted Enterprise Sub-contracting**

- i) Make recommendations to the Contractor in identifying and structuring the work packages to be sub-contracted to Targeted Enterprises and approve the scope and extent of the work packages.
- ii) Verify that the Targeted Enterprise Database(s) has been updated prior to the letting of every new set of sub-contracts.
- iii) Approve tender procedures, tender documents, tender submission requirements and adjudication processes for the sub-contracting of Targeted Enterprises.
- iv) Review all tender adjudication reports and monitor that the criteria and procedures applied by the Contractor to sub-contract Targeted Enterprises are executed in a fair and transparent manner and are within the Employer's and Government's Supply Chain Management Policies.
- v) Verify that sub-contract agreements and the conditions of sub-contracting with Targeted Enterprises are fair and transparent and within the prescripts of the Contract requirements.
- vi) Monitor the management of Targeted Enterprise sub-contracts and ensure that conditions such as the application of penalties, the termination of contracts, etc. are applied in a fair and transparent manner and within the prescripts of the agreement.

##### **b) Targeted Labour Employment**

- i) Verify that the Labour Database(s) from which Targeted Labour will be employed is updated prior to every new Labour intake.
- ii) Monitor that the criteria and procedures applied by the Contractor to employ Targeted Labour are executed in a fair and transparent manner and is within the Contract requirements.
- iii) Monitor that the conditions of employment of Targeted Labour are applied in a fair and transparent manner and within the prescripts of the current and relevant Labour legislation.

##### **c) Target Group Training Requirements**

- i) Make recommendations to the Contractor in identifying the training requirements of Targeted Labour and Targeted Enterprises and approve the proposed training programmes.



- ii) Monitor that training programmes and support programmes, which the Contractor committed to, are implemented, and executed as intended.

## **D1007 TENDER PROCESS FOR TARGETED ENTERPRISES**

While the Contractor may utilise service providers, sub-contractors and suppliers of its choice and selected via its own internal processes, for the sub-contracting of Targeted Enterprises based on the Employer's Contract Participation Goals, the Contractor shall follow the prescripts of this Section D of the Specifications.

### **D1007.01 Targeted Enterprise (TE) Procurement Coordinator**

The Contractor shall appoint a TE Procurement Coordinator to facilitate the sub-contracting of work to Targeted Enterprises as defined in the Specification Data. For Contracts with a value of less than R 200 million per annum the Contractor may appoint a TE Procurement Coordinator from its site staff. For Contracts with a value of more than R 200 million per annum the Contractor shall employ or sub-contract a dedicated TE Procurement Coordinator, whose sole responsibility will be the management of Targeted Enterprise procurement and sub-contracting matters.

The TE Procurement Coordinator shall be knowledgeable of, and have experience in, the management of civil, electrical or electronic engineering projects, National Treasury supply chain management legislation and regulations, and stakeholder relations management.

With the input and support of the PLC, the TE Procurement Coordinator shall conduct the tender processes and procedures for Targeted Enterprise sub-contracting as prescribed in this Section D of the Specifications and shall adhere to the Employer's and Government's Supply Chain Management Policies and requirements.

### **D1007.02 Procedures for Targeted Enterprises Sub-contracting**

The Contractor shall utilise the suitable, fit for purpose tender and contract document for Targeted Enterprise sub-contracting. The Employer sub-contract document attached as Annexure X3 and X4 may be used as guideline document and an electronic version will be provided to the Contractor on award.

The identification and application of the eligibility and functionality criteria, and conducting the tender processes and procedures for sub-contracting include, amongst others, the following tasks:

#### **a) Tender Preparation**

- i) Compile preliminary list of sub-contracting work packages.

Based on the Specification Data and the Scope of the Works, the Contractor shall compile a preliminary list of the work packages (scope of work and number of packages) that are anticipated to be sub-contracted to Targeted Enterprises.

The Contractor shall refer to the construction activities that has been identified as being suitable for construction by Targeted Enterprises as listed in Section D1009 of these Project Specifications, and to any other construction activities which are required to execute the Works in terms of this Contract, to determine how to unbundle or package sub-contracts for Targeted Enterprises.

- ii) Conduct a market analysis and resources and skills audit.

Based on the preliminary list of work packages, the Contractor shall conduct a market analysis and resources and skills audits to determine the availability of the required resources and skills in the Project Area to execute the anticipated Targeted Enterprise work packages. The Contractor shall consult the following databases as a minimum:

- a. Construction Industry Development Board (CIDB)'s contractor database (not applicable to suppliers and non-construction services).
- b. National Treasury's Central Supplier Database (CSD) to be obtained from the Employer's Supply Chain Management Department.

iii) Call for an expression of interest.

In addition to consulting the CIDB contractor database and National Treasury's CSD, the Contractor shall call for an expression of interest, which shall be published in newspapers and at locations as agreed by the PLC.

For each group of work packages, the call for an expression of interest shall outline:

- a. evaluation and selection criteria such as eligibility, preference, and functionality.
- b. compliance requirements such as CSD and CIDB registration, tax clearance and COID.
- c. the anticipated scope of the works to be undertaken.

iv) Establish a Targeted Enterprise Helpdesk

Other than informing the Contractor's market analysis and resources and skills audits, the purpose of the call for an expression of interest is to alert Targeted Enterprises of the sub-contracting opportunities and inform them of the anticipated eligibility, preference, and functionality criteria, as well as of the compliance requirements.

The Contractor shall enhance the readiness of Targeted Enterprises to participate in the sub-contracting opportunities by establishing a helpdesk at a suitable and easily accessible location in the Project Area.

The Contractor shall provide guidance to Targeted Enterprises in getting their statutory requirements in order in anticipation of the sub-contracting opportunities. The helpdesk shall assist with, or provide guidance in, registering with the CSD and the CIDB, obtaining tax clearance and COID compliance and any other relevant qualifying requirements.

v) Compile Preliminary Targeted Enterprise Database

Based on the CPG targets listed in the Specification Data and the information obtained from the activities described in paragraphs ii) and iii) above, the Contractor shall compile a Preliminary Targeted Enterprise Database.

In compiling the preliminary Targeted Enterprise Database, the Contractor must bear in mind that the benchmark for an adequate number of tenderers to ensure a competitive tender process is ten (10) tenderers that are able to achieve the functionality threshold during the tender evaluation.

vi) Identify Targeted Enterprises, Target Groups and Project Area(s).

Based on the CPG targets listed in the Specification Data and the Preliminary Targeted Enterprise Database, the Contractor shall identify the:

- a. Targeted Enterprises (CIDB grades and types); and
- b. Designated Groups (woman, youth, etc.) which are anticipated to benefit from the sub-contracting opportunities; and
- c. Project Area(s) from which Targeted Enterprises will be given preference for sub-contracting opportunities.

vii) Compile a Contract Participation Goal (CPG) Plan.

The Contractor shall utilise all the information gathered from the activities described in the paragraphs above to compile an acceptable CPG Plan. The plan shall contain:

- a. a list of work packages (scope of work and number of packages) to be subcontracted to Targeted Enterprises,
- b. procurement, award and execution dates for the work packages, distributed over the duration of the Works Contract (from site establishment to completion of the Works) to ensure continuous work opportunities,
- c. the preliminary Targeted Enterprise Database(s) for each work package,
- d. the Targeted Enterprises (CIDB grades and types) and Designated Groups (woman, youth, etc.) which are to benefit from the sub-contracting opportunities,
- e. the Project Area(s) from which Targeted Enterprises will be given preference for sub-contracting opportunities, and
- f. the tender evaluation and selection criteria for the respective work packages.

viii) Acceptance of the CPG Plan

The Contractor shall submit the CPG Plan to the Engineer for acceptance after which it shall be tabled to the PLC for their information.

The Contractor shall ensure that the tender requirements and the outcome of different tendering scenarios are explained to the PLC, specifically with respect to the outcomes of evaluating:

- a. Eligibility criteria,
- b. Functionality structuring and scenarios,
- c. Price and Preference,
- d. Compliance requirements, and
- e. Negotiation processes (if applicable).

If required, the Contractor shall make amendments to the CPG Plan based on the Engineer's instructions.

ix) Compile tender documents.

The Contractor shall compile the tender documents for each Targeted Enterprise sub-contract work package and shall utilise the suitable bid document for Targeted Enterprise sub-contracting (see Annexure X3 and X4)

In compiling the sub-contract tender documents, the Contractor shall include in each tender document relevant Conditions of Tender and the FIDIC sub-contract agreement/suitable conditions of contract. The Contractor shall compile each sub-contract tender document in a manner that facilitates the achievement of all objectives and principles pertaining to the development of the Targeted Enterprises.

The draft sub-contract tender documents shall be approved by the Engineer before letting the tender.

**b) Tender Process**

i) Advertise the sub-contract packages.

The Contractor shall advertise and invite tenders from Targeted Enterprises for the respective sub-contract packages. Advertisements shall be placed in local newspapers, on community notice boards, on SANRAL's electronic supply development desk portal (<https://sanralesdd.co.za>), and any other place or medium as agreed with the PLC.

If the Employer have a pro-forma Tender Notice available, the Contractor shall use this document.

ii) Conduct a tender briefing and tender training session.

For each group of sub-contract packages, the Contractor shall conduct a compulsory briefing session to explain the tender process, the evaluation and selection criteria and the scope of the works to the Targeted Enterprises.

An Attendance Register shall be completed by all attendees and Minutes shall be taken during the briefing session. The Minutes of the briefing session shall be distributed to all attendees as an Addendum to the Tender Documents.

The Contractor shall conduct a “how to complete a tender document” training session as a component of the tender briefing to interested Targeted Enterprises. The level of detail and hence the duration, of the training session shall be informed by the findings of the resources and skills audit conducted during the Tender Preparation Phase.

The Contractor shall engage with the Employer’s Regional Transformation Officer on the Employer’s SMME Pre-tender Training and Development Programme and utilise this programme if it is available at the time in the Project Area. The Regional Transformation Officer’s contact details shall be provided by the Project Manager on award.

Notes of this training session shall be distributed to all attendees of the briefing session as an Addendum to the Tender Documents, irrespective if they have attended the training session or not.

A separate Attendance Register shall be completed for the training session for future reference.

iii) Minimum tender submission documents.

It shall be a condition of tender that Targeted Enterprises include in their tender submissions the following documentation (if applicable, based on the sub-contract type, e.g., construction, supply, or services):

- a. Proof of the Tenderer’s B-BBEE contributor level.
- b. Proof that the Tenderer is an EME or QSE entity.
- c. Proof that the Tenderer is registered on National Treasury’s CSD.
- d. Proof of the Tenderer’s locality (address registered with the CIPC).
- e. Proof that the Tenderer is registered with the CIDB in the required grading and class (not applicable to suppliers).
- f. Proof that the Tenderer is compliant with the COID act.
- g. Proof that the Tenderer is tax compliant.

iv) Tender closure and opening of tenders.

Tenders for the sub-contract packages shall close at a stipulated time and date. Tenders shall be submitted to the Contractor in the format and at the address prescribed by the Contractor in the sub-contract Tender Data.

The tender opening shall be conducted by the Contractor who shall publicly announce and record the names of all bidders and their tender prices.

v) Finalise Targeted Enterprise Database

The purposes of the preliminary Targeted Enterprise Database are described in the Tender Preparation phase above of which one is to alert Targeted Enterprises to assess their readiness to participate in the project's sub-contractor opportunities.

The period between the Contractor's call for an expression of interest and the date of closure of the relevant sub-contract tender allows for prospective Tenderers to become compliant to the database criteria. The preliminary database is thus a "live" database until the date of tender closure.

On the date of tender closure, the Contractor shall request the Employer's Supply Chain Management Department to print out a list from National Treasury's CSD, of entities that adheres to the Targeted Enterprise Database criteria. This list shall become the Final Targeted Enterprise Database for relevant sub-contract tender and shall be submitted to the PLC for sign-off.

**c) Tender Evaluation**

The Contractor shall evaluate the tenders and it shall be a condition of tender that tenders will only be accepted from Targeted Enterprises that fully comply with the definition of a Targeted Enterprise as described in Section D1002 of the Specifications.

The Contractor shall evaluate the tenders based on (1) Eligibility, (2) Functionality, (3) Price and Preference, and (4) Compliance.

**i) Stage 1 – Eligibility**

Tenderers shall be checked for their eligibility to tender for the advertised sub-contract packages based on the following eligibility criteria:

- a. Proof that the Tenderer is registered with the CIDB (if applicable).
- b. Proof that the Tenderer is registered on National Treasury's CSD.
- c. Proof that the Tenderer is registered with the CIPC.
- d. Proof that the Tenderer is a level 1 to 4 B-BBEE contributor.
- e. Proof that the Tenderer is an EME or a QSE.

Proof that the Tenderer falls within one or more of the designated groups as per the Specification Data (if applicable).

Eligible Tenderers shall be further evaluated against the functionality criteria.

**ii) Stage 2 – Functionality**

No Targeted Enterprise may be prohibited from responding to the invitation to tender, however, preference shall be given to those Targeted Enterprises that adheres to the tender criteria, which amongst others, shall be measured by means of a functionality evaluation.

To ensure Targeted Enterprise participation as it is intended by the Employer and as defined in the Specification Data, Functionality shall be scored based on the type of sub-contract package, e.g., construction or the supply of goods or services and at least three (3) or more of the criteria listed below shall be applied.

The points allocated for the listed criteria shall be clearly demonstrated to tenderers as a matrix in the tender document. The functionality matrixes provided in the Employer's proforma document for Targeted Enterprise sub-contracting (Annexure X3 and X4) shall be used as a reference to determine criteria to evaluate the functionality of Tenderers.

Tenderers must score a minimum of 75% for functionality and Tenderers that do not obtain the threshold shall not be evaluated further.

- a. Locality

For lower CIDB grade packages, the points allocated for Locality typically has a higher weighting in the total evaluation points but shall not be more than 65% of the total evaluation points.

Points scored shall be based on the Targeted Enterprise's registered address with the CIPC.

- i. If the Targeted Enterprise is more than twelve (12) months old and the company address:
  - (a) was changed with the CIPC in the twelve (12) months prior to the tender advertisement; or
  - (b) does not correlate with the company address recorded on the CSD,

the Targeted Enterprise shall provide additional proof of its address in the twelve (12) months preceding the tender advertisement date and that the address is current by submitting the following:

- (i) for urban areas:
    - 1. signed lease agreement confirming occupation in the preceding twelve (12) months; or
    - 2. mortgage statement confirming ownership in the preceding twelve (12) months; and
    - 3. a current utility bill (not older than three (3) months) confirming that occupation is current; or
  - (ii) for semi-urban and rural areas
    - 1. an affidavit from the relevant ward councillor or traditional authority, signed and stamped by a registered commissioner of oaths, which confirms that the business has been operating from the said address in the preceding twelve (12) months.
- ii. If Targeted Enterprise is less than twelve (12) months old and the company address:
    - (a) was changed with the CIPC in the twelve (12) months prior to the tender advertisement; or
    - (b) does not correlate with the company address recorded on the CSD,

the oldest registered address on either the CIPC or the CSD will be accepted as the Targeted Enterprise's address for the purpose of scoring locality points.

- iii. If the Targeted Enterprise intends to operate from a branch office for the purpose of the anticipated sub-contract, the same additional proof that the company has been operating from the branch office in the twelve (12) months prior to the tender advertisement date must be provided as listed in the paragraphs above.
- iv. If the above additional proof of address cannot be provided, locality points shall be awarded based on the tenderer's address registered with the CIPC in the twelve months prior to the tender advertisement date.

b. Equipment

For lower CIDB grade packages, the points allocated for Equipment typically has a lower weighting in the total evaluation points.

The combined points allocated for Equipment and Experience shall not be more than 35% of the total evaluation points.

c. Experience

For lower CIDB grade packages, the points allocated for Experience typically has a lower weighting in the total evaluation points.

The combined points allocated for Equipment and Experience shall not be more than 35% of the total evaluation points.

d. CIDB grade and class

The points allocated for CIDB grade and class shall not be more than 35% of the total evaluation points.

CIDB grade and class shall not be used as an evaluation criterion for packages pertaining to the supply of material, goods and/or services.

e. Project Specific Designated Groups, e.g., woman, youth, etc.

In addition to the eligibility criteria for preferential procurement functionality points may also be allocated for the following Designated Groups:

- i. Tenderer is 51%+ owned by black people who are youth.
- ii. Tenderer is 51%+ owned by black people who are women.
- iii. Tenderer is 51%+ owned by black people with disabilities.
- iv. Tenderer is 51%+ owned by black people who are military veterans.

The points allocated for Designated Groups shall not be more than 15% of the total evaluation points.

One, two or three of the Designated Groups listed above may be selected to count towards the score for Designated Groups.

If any one of the Designated Groups listed above is already an eligibility criterion, it must not be included as a functionality criterion as well.

The inclusion of any of the Designated Groups listed above shall be based on the Contractor's Resources and Skills Audit.

Youth and veterans may not be selected together.

iii) Stage 3 – Price and Preference

Tenderers that obtained the minimum threshold for functionality shall be further evaluated on their Price and Preference submissions, i.e.

- a. Price = 80 / 90 %
- b. Preference = 20 / 10 %

The highest scoring tenderer for each sub-contract package shall be checked for compliance.

The Contractor shall state in the tender advertisement and in the tender documents that only one sub-contract package shall be awarded to an entity at any one time for this project, meaning that a Targeted Enterprise may be awarded a work package and on conclusion thereof may be awarded a subsequent work package, but more than one work package may not be awarded simultaneously for this project.

If a tenderer tendered for more than one sub-contract package and scored the highest points in more than one package, the Contractor shall award to the tenderer the work package that has the most economic benefit to the Employer.

iv) Stage 4 – Compliance Check

The highest scoring tenderer for each sub-contract package shall be checked for compliance with respect to the following criteria:

- a. Proof that the Tenderer is compliant with the COID Act (excl. CIDB 1 and 2 CE sub-contractors).
- b. Proof that the Tenderer is tax compliant.

If the highest scoring tenderer fails to meet any of the compliance criteria, he will be given seven (7) calendar days to become compliant.

If the highest scoring tenderer fails to submit the requested compliance information in the required timeframe, he shall be deemed non-compliant, and the evaluator shall check the second highest tenderer for compliance. This process is repeated until a compliant tenderer has been identified.

**d) Appoint successful Targeted Enterprises**

i) Table the Tender Report to the PLC.

The Contractor shall present the Tender Report for each sub-contract package to the Employer's Project Manager and the Engineer and thereafter table it to the PLC prior to award of the sub-contract.

ii) Negotiating tender sum and/or rates with Targeted Enterprises.

a. Rates

If the Contractor choose to include work for which he has tendered rates in the sub-contract package and the tenderer who scored the highest points tendered higher rates than that of the Contractor, the Contractor may negotiate rates and the final sum with the tenderer.

If the Contractor fails to negotiate a reasonable tender sum or rates with the tenderer, he may:

- i. approach the second highest points scoring compliant tenderer for negotiation. This process may be repeated up to the third highest points scoring compliant tenderer, where after the package shall be retendered. the Contractor shall be limited to negotiate down to 25% above his own rates (this process must be clearly explained prior to negotiation, when the tender report is tabled to the PLC); or
- ii. accept the highest points scoring tenderer's higher rates and total sum and remunerate the sub-contractor, at the sub-contractor's tendered rates, from the Lump Sum which the Contractor has tendered for the fluctuation between the Contractor's rates and that of the Targeted Enterprise sub-contractors.

b. Provisional Sum



If the Employer has provided a Provisional Sum for the work items in the sub-contract package, the Contractor shall report on the feasibility of the highest point scoring compliant tenderer's tender rates and tender sum to the Employer's Project Manager and the Engineer.

- i. If the highest points scoring compliant tenderer's rates and tender sum are deemed market related by the Engineer, the Contractor shall obtain the Employer's approval to utilise the Provisional Sum provided for the work items.
- ii. If the highest points scoring compliant tenderer's rates and tender sum are deemed not market related and the Employer does not approve the utilisation of the relevant Provisional Sum, the Contractor may negotiate with the tenderer for market related rates and tender sum.
- iii. If the Contractor fails to negotiate market related rates and a tender sum with the tenderer, he may:
  - (a) approach the next highest point scoring compliant tenderer for negotiation. This process may be repeated up to the third highest points scoring compliant tenderer, where after the package shall be retendered; or
  - (b) accept the highest points scoring tenderers rates and total sum and remunerate the sub-contractor from the Lump Sum which the Contractor has tendered for the fluctuation between the Contractor's rates and that of the Targeted Enterprise sub-contractors. The Contractor shall not pay rates or tender sums that is more than 15% higher than what are deemed market related by the Engineer.

iii) Low tender sums submitted by Targeted Enterprises.

The Contractor shall report to the Employer's Project Manager and the Engineer on the feasibility of tendered rates, sums, or Provisional Sums of tenderers who tendered exceptionally. Exceptionally low rates, sums or Provisional Sums are those that are more than ten percent (10%) less than what the Contractor tendered, or in the case of a Provisional Sum, what is deemed market related by the Engineer.

- a. If the tendered rates, sums, or Provisional Sums of those tenderers who tendered exceptionally low are deemed by the Engineer to still be feasible, the Contractor may continue to include these tenders in his tender evaluation.
- b. If the tendered rates, sums, or Provisional Sums of those tenderers who tendered exceptionally low are deemed by the Engineer to not be feasible, the Contractor may disqualify these tenders from his tender evaluation.

The Employer strongly discourages the appointment of Targeted Enterprises that did not tender feasible rates, sums, or Provisional Sums. If all prices submitted are deemed exceptionally low by the Engineer, the sub-contract package shall be retendered.

The consequences of exceptionally low prices must be clearly outlined in the Tender Report and clearly explained to the PLC prior to award or retendering of the sub-contract packages.

iv) Payment to the Contractor

- a. The Employer shall not remunerate the Contractor, other than what have been provided for in the payment items, for accepting higher tender sums tendered by Targeted Enterprises.
- b. If the Contractor accepts tender sums that are higher than what have been provided for in the Contractor's tendered rates, or the Employer's provisional and/or prime cost sums, the costs shall be paid by the Contractor from the Lump Sum which he tendered for the fluctuation between the Contractor's rates and that of the Targeted Enterprise sub-contractors.

v) Entering the Sub-contract Agreement

The Contractor's TE Procurement Coordinator shall assist successful Targeted Enterprises to enter into a sub-contract agreement with the Contractor as described in this Specifications.

## **D1008 GENERAL RESPONSIBILITIES OF THE CONTRACTOR TOWARDS TARGETED ENTERPRISES**

The Contractor shall have the responsibilities described in this Section, D1008 of the Specifications, towards all Targeted Enterprises sub-contracted in terms of the CPG as stated in the Specification Data.

### **a) The Employer's Independent Targeted Enterprise Monitor**

The Employer shall, through its Transformation Unit, appoint an independent Targeted Enterprise Monitor, who shall audit the Contractor with respect to his obligations to Targeted Enterprises and who shall report his findings to the Employer's Project Manager, the Engineer, and the Regional Transformation Officer (RTO) monthly.

### **b) Failure to Comply with Responsibilities Towards Targeted Enterprises**

If the Contractor, in the opinion of the Employer's Project Manager or the Engineer, fails to comply with its responsibilities towards Targeted Enterprises, the Engineer shall issue a written warning to the Contractor, stating all the areas of non-compliance. The Contractor's time to correct shall be stated in the letter and shall be in accordance with the relevant specifications for the aspects of non-compliance.

A copy of the letter of warning shall be forwarded to the Employer's Project Manager and the Targeted Enterprise Monitor shall monitor that corrective action is taken by the Contractor.

Failure by the Contractor to comply with a deadline, will be sufficient grounds for the Employer to apply a penalty or institute a claim in accordance with the relevant Conditions of Contract.

## **D1008.01 Targeted Enterprise (TE) Operations Manager**

The Contractor shall appoint a dedicated TE Operations Manager whose sole responsibility shall be to assist the Contractor with the execution of his responsibilities towards Targeted Enterprises and Target Groups as prescribed in this Section D of the Specifications, with an emphasis on D1008 and D1010. The Targeted Operations Manager Operations shall spend at least 10 working days on this project. Irrespective of the contractual relationship between the TE Operations Manager and the Contractor, the TE Operations Manager shall not perform any other duties than that of a dedicated TE Operations Manager on a full-time basis for this Contract.

### **a) TE Operations Manager's Obligations**

Amongst others, the TE Operations Manager shall facilitate the training, mentoring, guidance, coaching, development, and support of Targeted Enterprises as per the Contractors approved Training and Skills Development Programme (see Section D1010 of the Specifications).

The TE Construction Manager shall submit monthly TE Progress Reports in the Employer's reporting format. The report shall be submitted to the Employer's Project Manager and Regional Transformation Officer, the Engineer and the Contractor, at least one week prior to the monthly site progress meeting.

This report shall include, amongst others:

- i) Details of TEs trained, e.g., number, hours, value, modules, credits obtained, etc.
- ii) Details of TEs sub-contracted, e.g., number, packages, values, etc.
- iii) Details of TEs performance on the work packages, and skills gaps to be addressed, etc.
- iv) Details of TEs growth and sustainability, e.g., CIDB grading upgrades, business success, etc.
- v) Details of disputes and the associated interventions and/or resolutions.

**b) TE Operations Manager's Qualifications and Experience**

The TE Operations Manager shall have as a minimum a National Diploma: Management of Engineering Construction Processes (NQF Level 5) or an equivalent qualification.

The TE Operations Manager shall have at least 5 years' experience as a Site Agent or equivalent position, or in the management or execution of civil, electrical or electronic engineering projects (construction or operation projects). In addition, he shall have ample knowledge of, and experience in, the requirements of training and mentoring in the civil, electrical or electronic engineering environment.

**c) TE Operations Manager's Team**

No Senior TE Site Supervisors, and no TE Site Supervisors will be required. The obligations of Senior TE Site Supervisors and TE Site Supervisors will be carried out by the TE Operations Manager."

**D1008.02 General Obligations**

The Contractor shall, with the assistance of the TE Operations Manager, comply with the following general obligations:

- a) Assist the Targeted Enterprises in instituting a quality assurance system.
- b) Provide adequate training, coaching, guidance, mentoring and any other identified and approved assistance to Targeted Enterprises and their employees.
- c) Provide support and any other identified and approved assistance to ensure that the Targeted Enterprises meet their obligations and commitments with respect to their sub-contracts.
- d) Assist Targeted Enterprises to monitor and manage the schedules, costs, and cash flows of their sub-contracts.
- e) Endeavour to avoid sub-contract disputes and if disputes do arise, facilitate a process to find an amicable solution.
- f) Ensure that the CPG objectives are achieved.

**D1008.03 Sub-contract Agreements**

The Contractor shall conclude sub-contract agreements with each sub-contracted Targeted Enterprise and shall utilise the Employer's proforma document for Targeted Enterprise sub-contracting (see Annexure X3 and X4) as an example, which is based on the 2011 FIDIC Conditions of Sub-contract for Construction and shall be in accordance with the provisions of amended sub-clause 4.4 of the Conditions of Contract and shall be consistent with the terms and conditions of this Contract.

**a) Special Conditions of Contract**

The following Special Conditions of Contract forms part of the sub-contract agreement:

- i) The Targeted Enterprise's entitlement to receive the training contemplated in this Contract (Part C1, C1.2.1, Part B, clause 6.8).
- ii) The Targeted Enterprise's obligation to participate and co-operate in the training provided for in this Contract (Part C1, C1.2.1, Part B, clause 6.5).
- iii) The allowable sources from which Labour may be drawn in terms of the Contract (Part C1, C1.2.1, Part B, clause 6.8).
- iv) The terms and conditions relating to the recruitment, employment and remuneration of Labour engaged on the Contract (Part C1, C1.2.1, Part B, clause 6.5).
- v) The training to be provided to the Targeted Enterprise's workforce (Part C1, C1.2.1, Part B, clause 6.8).

- vi) The terms and conditions related to payment of the Targeted Enterprise (Part C1, C1.2.1, Part B, clauses 14.6 to 14.8 and 15.3).
- vii) Sanctions in the event of failure by the Targeted Enterprise to comply with the terms and conditions of the sub-contract agreement (Part C1, C1.2.1, Part B, clauses 14.6 and 20.4 to 20.7).
- viii) Dispute avoidance and resolution procedures (Part C1, C1.2.1, Part B, clauses 20.4 to 20.7).

Further Special Conditions of Contract required by the Contractor shall only be included into the sub-contract agreement once approved by the Employer and the Engineer.

**b) Monitoring of Sub-contract Agreements**

The proforma sub-contract agreement for each group of work packages shall be tabled to the Employer's Independent Targeted Enterprise Monitor for his review and confirmation that sub-contract agreements are in terms of the Employer's requirements and policies.

In addition, the PLC may request proof that sub-contract agreements were entered into with the sub-contracted Targeted Enterprises. The PLC may request insight into the Conditions of Subcontract and Sub-contract Data.

To protect Targeted Enterprises' competitive advantage and/or tender strategy, only the sub-contract agreement shall be available to the PLC for perusal and not the pricing structure and/or Schedule of Quantities.

A copy of each sub-contract agreement shall be filed with the Engineer after confirming that it is in accordance with the provisions of this Contract.

**D1008.04 Payment of Targeted Enterprises**

Targeted Enterprises shall be paid the rates and/or Provisional Sums, which they have tendered, or which have been negotiated as described in this Section D of the Specifications.

**a) Payment of Provisional and General Obligations**

Provision shall be made in the sub-contract agreement for the Targeted Enterprise's preliminary and general obligations (P&Gs), which shall be calculated as a minimum of 15% of the value of the scheduled sub-contract work items.

Where the Contractor's sub-contract work is not paid from a Provisional Sum, the P&Gs of the Targeted Enterprise shall be paid from the Lump Sum tendered by the Contractor for the P&Gs of Targeted Enterprises.

P&Gs shall be paid to Targeted Enterprises as per Section PC1.3.1 of the COTO specification payment items, i.e.:

- C1.3.1.1 paid in 3 instalments of 50%, 35% and 15%.
- C1.3.1.2 paid as a percentage of the total value progressively per certificate.
- C1.3.1.3 paid monthly for the sub-contractor's contract duration.

**b) Monitoring of Payment of Targeted Enterprises**

The Employer's independent Targeted Enterprise Monitor shall audit the Contractor's Payment of Targeted Enterprises to ensure timeous and correct payment in terms of the Employer's requirements and Policies and shall report his findings to the Employer's Project Manager on a regular basis.

**D1008.05 Quality of Work and Performance of Targeted Enterprises**

**a) Ensuring Quality of Work and Performance**

The purpose of the Employer's CPG is to, amongst others, enhance the utilisation and development of Targeted Enterprises. Thus, while the Contractor remains responsible for the quality of work and performance of Targeted Enterprises, he may not neglect the developmental requirements in the sub-contracting of Targeted Enterprises.

It is thus emphasised that the Contractor's TE Construction Manager shall closely monitor and supervise all Targeted Enterprises and shall train, coach, guide, mentor and assist each Targeted Enterprise in all aspects of management, execution, and completion of its sub-contract. This shall typically include assistance with planning of the Works, sourcing and ordering of materials, labour relations, monthly measurements, and invoicing procedures. The extent and level of such training, coaching, guidance, mentoring, and assistance to be provided by the Contractor shall commensurate with the level of sub-contract applicable and shall be directed at enabling the Targeted Enterprise to achieve the successful execution and completion of its sub-contract.

**b) Failure by the Targeted Enterprise to Comply**

If the Targeted Enterprise, in the opinion of the Engineer, fails to comply with any of the criteria listed below, the Engineer shall issue a written warning to the Contractor, stating all the areas of non-compliance. A copy of the letter of warning shall be forwarded to the Employer's Project Manager and the Employer's independent Targeted Enterprise Monitor. The criteria are as follows:

- i) Deliver acceptable standard of work as set out in the specifications.
- ii) Progress in accordance with the time constraints in the sub-contract agreement.
- iii) Punctual and full payment of the workforce and suppliers.
- iv) Site safety.
- v) Accommodation of traffic.

**c) Assist the Targeted Enterprise to Make Good**

The Contractor shall, in terms of the sub-contract agreement (Part C, clause 3.1.12), give reasonable warning to the Targeted Enterprise when any contravention of the terms and conditions of the sub-contract agreement has occurred or appears likely to occur.

The Contractor shall, together with the Targeted Enterprise, identify the causes that led to failure to comply and jointly develop a plan to rectify, which plan shall be submitted to the Employer's Project Manager and the Engineer for information purposes.

Based on the plan to rectify, the Contractor shall give the Targeted Enterprise reasonable opportunity to make good any such contravention, or to avoid such contravention, and shall render all reasonable assistance to the Targeted Enterprise in this regard.

**d) Monitoring Execution of the Plan to Make Good**

The Employer's independent Targeted Enterprise Monitor shall review plans to rectify and monitor the execution thereof to ensure that Targeted Enterprises are given a fair opportunity to rectify within a developmental environment. He shall report his findings to the Employer's Project Manager monthly.

**D1008.06 Dispute Avoidance and Resolution Procedures**

When any disputes arise, the Contractor shall within seven (7) calendar days inform the Employer's Project Manager, the Employer's Targeted Enterprise Monitor, and the Engineer, in writing, of the details of the dispute.

**a) Facilitate Dispute Avoidance**

Prior to taking any action, the Contractor shall commence with a facilitation process by arranging a formal meeting with the Targeted Enterprise with the aim to find an amicable solution to the dispute. The meeting shall be attended by the Employer's Project Manager, the Employer's Targeted Enterprise Monitor, and the Engineer to ensure a fair and transparent process in reaching a settlement.

If the parties are unable to find an amicable solution, the Contractor shall explain fully to the Targeted Enterprise the provisions in the sub-contract agreement to address disputes. If action is necessary, it shall be discussed with the Employer's Project Manager and the Engineer prior to any action being taken.

**b) Support to Targeted Enterprise during Dispute Resolution Process**

While the Employer's Project Manager and the Engineer will observe the dispute resolution process to ensure fairness and transparency, the Targeted Enterprise may request consultation and assistance from the Targeted Enterprise Monitor. The Targeted Enterprise Monitor will assist the Targeted Enterprise with the interpretation of the Conditions of Sub-contract and will guide the Targeted Enterprise during the dispute resolution process.

**c) Issuing a Letter of Warning to Targeted Enterprise**

The Contractor shall issue a letter of warning to the Targeted Enterprise, whom shall have 21 calendar days from the date of receipt of the letter of warning by the Contractor to address and rectify the issues raised by the Engineer, except for issues pertaining to Site Safety and Accommodation of Traffic, for which the reaction time shall be in accordance with the relevant specifications for those aspects of the Works, but which shall not be longer than 24 hours.

**d) Failure by the Targeted Enterprise to Comply**

Failure by the Targeted Enterprise to comply with a deadline, will be sufficient grounds for the Contractor to apply a penalty or terminate the sub-contract agreement provided that the Employer's Project Manager and the Engineer are satisfied that the Contractor has made every effort to correct the performance of the Targeted Enterprise.

The Targeted Enterprise may dispute any ruling given or deemed to be given by the Contractor or the Engineer, within 21 calendar days after receipt thereof by submitting a written Dispute Notice to the Contractor, in terms of the relevant Conditions of the Sub-contract.

On request by the Targeted Enterprise, the Targeted Enterprise Monitor will assist the Targeted Enterprise with the interpretation of the Conditions of Sub-contract and will guide the Targeted Enterprise during the dispute resolution process.

**D1009 WORK SUITABLE FOR EXECUTION BY TARGETED ENTERPRISES**

To assist the Contractor in achieving his CPG, the following work items have been identified as being suitable for execution by Targeted Enterprises:

- a) Erection and maintenance of the Contractor's camp site
- b) Electronics works.
- c) CCTV cameras
- d) Provision of traffic control facilities.
- e) Installation and maintenance of lane equipment
- f) Construction of small concrete and other structures.
- g) Construction of concrete walkways.

- h) Pitching, stonework and protection against erosion.
- i) Erection of guardrails.
- j) Landscaping.
- k) Fencing.
- l) Road signs.
- m) Road markings.
- n) Finishing the road and road reserve.
- o) Plaza Security Services.
- p) Supply of plant.
- q) Supply of fuel.
- r) Specialised subcontract work such as:
  - i) General Building and Plaza Maintenance
  - ii) Route Patrols
- s) Cleaning and Routine maintenance

The work to be carried out by Targeted Enterprises is not limited to the work listed above and the Contractor may need to engage Targeted Enterprises on other aspects of the Works to achieve the CPG.

In the event that the work is not or cannot specifically be designated for CIDB 1 and 2 Targeted Enterprise sub-contractors, then the Contractor shall use his best endeavours to define and package work for Targeted Enterprise sub-contractors with experience in aspects of Toll System Installation and Maintenance, Toll Plaza Lane maintenance, Toll Plaza security and Traffic Accommodation work.

## **D1010 TRAINING, COACHING, GUIDANCE, MENTORING AND ASSISTANCE**

The Contractor shall with the input and support of the PLC develop a Training and Skills Development Programme which shall be managed by the Contractor's TE Operations Manager

### **D1010.01 Purpose of the Training and Skills Development Programme(s)**

Skills development forms an integral part of the Employer's Transformation and Community Development Policies and hence, it is important to the Employer that Targeted Labour and Targeted Enterprises be equipped with skills that can be used to gain meaningful future employment and secure sub-contracting opportunities.

It is, therefore, a requirement of this Contract that the Contractor provide adequate training, coaching, guidance, mentoring and assistance to the Targeted Labour and Targeted Enterprises, to ensure skills development within the Construction Industry.

### **D1010.02 Skills Audit and Analysis**

To develop the Training and Skills Development Programme(s), the Contractor shall conduct a skills audit and analysis of Labour on the Targeted Labour database and the Targeted Labour of sub-contracted Enterprises to determine their levels of education, existing qualifications, and skills sets. The outcome of the skills audit and analysis shall be used to develop a Training and Skills Development Programme(s) that will benefit both the employee and the Construction Industry at large.

Included in the skills audit and analysis shall be a separate section, analysing the education, qualifications and skills sets of the Targeted Enterprise's owners and their supervisors sub-contracted by the Contractor, to develop a Training and Skills Development Programme that will develop and improve the ability of small business owners and their supervisory staff to better manage their enterprises.



### **D1010.03 Developing the Training and Skills Development Programme**

The Employer shall, through its Project Manager, be involved in the decision making and quality control pertaining to the development and implementation of the Training and Skills Development Programme facilitated through this Contract.

The Employer has no service agreement or memorandum of understanding with any education and training quality assurance body and, therefore, does not function as the “Employer” as defined under any three-party-agreement between the Trainee, the Training Provider, and the Employer.

The complete Training and Skills Development Programme shall be developed during the 1<sup>st</sup> 6 Months of the Contract, accepted by the Engineer after consultation with the Employer’s Project Manager, and tabled to the PLC for their information.

### **D1010.04 The Training Service Provider (Not Applicable)**

### **D1010.05 Training and Skills Development Programme: General Requirements**

#### **a) Student Experiential Training or Learnerships or Internships**

The Employer may deploy students to the construction site to obtain experiential training. The Contractor shall provide experiential training to these students in accordance with the relevant academic institution’s requirements, which is typically a university, a university of technology, or a TVET.

The Contractor shall also provide students with all the tools (including appropriate information technology hardware and software) and site office space necessary to carry out engineering work as if they were the Contractor’s own permanent staff.

Reporting on training progress of each student shall be compiled according to the formats and intervals set by the relevant academic institution.

#### **b) Toll Plaza maintenance and systems related Training**

The Contractor’s Training and Skills Development Programme shall include Toll Plaza maintenance and systems related training.

The Contractor shall make representation to the Employer’s Project Manager and the Engineer, who shall approve candidate trainees that should attend such courses as they deem appropriate. Selected trainees shall comprise of Target Enterprises or selected members of Affected Communities. Trainees shall receive formal Toll Plaza maintenance and systems skills training in a programmed and progressive manner.

Typical training programmes could comprise some or all the following modules:

- i) Electrical and Mechanical systems,
- ii) General computer and IT systems
- iii) Toll Plaza Operations and Maintenance.
- iv) Other suitable general plaza maintenance

Where possible skills training shall be accredited by the relevant Sector Education and Training Authority (SETA) and shall be provided with accredited entities and/or individuals.

#### **c) Generic Skills Training**

Generic skills shall be taught where the need has been identified and approved by the Employer’s Project Manager and the Engineer.

The Contractor shall make representation to the Employer's Project Manager and the Engineer, who shall approve candidates that should attend such courses as they deem appropriate. Those selected shall receive formal generic skills training in a programmed and progressive manner. The PLC may also identify a need for generic skills training.

Typical training programmes could comprise some or all the following modules:

- i) Basic hygiene and HIV/AIDS awareness.
- ii) Road safety.
- iii) Basic management of the environment.
- iv) Tourism awareness and opportunities.
- v) Managing personal finance.
- vi) Adult Basic Education and Training (ABET).
- vii) Community based training programmes (e.g., knitting, computer skills, plant/machine operator, etc.).

All generic skills training shall be accredited by the relevant Sector Education and Training Authority (SETA) and shall be provided with accredited entities and/or individuals.

#### **d) Community Training**

Community training shall be taught where the need has been identified. Affected Communities may submit their training needs to the PLC for the Contractor's consideration and inclusion into the Training and Skills Development Programme.

While considering the training needs of affected Communities, the Engineer shall inform the PLC of the Contract's training limitations, as well as of the training that could be undertaken through the Contract.

Trainees from the Community shall be identified through the Community structures and with the input and support of the PLC. Trainees selected from the Community shall receive formal skills training in a programmed and progressive manner in compliance with sub-clause (d). Priority shall be given to training that will equip Community members with skills that will enhance their employability.

All community skills training shall be accredited by the relevant Sector Education and Training Authority (SETA) and shall be provided with accredited entities and/or individuals.

#### **e) Training Facilities**

The Contractor shall be responsible for providing everything necessary to offer the various training workshops and modules including:

- i) a suitable venue with sufficient furniture, lighting, and power,
- ii) all necessary stationery consumables and study material,
- iii) transport for attendees.

### **D1011 LABOUR ENHANCED CONSTRUCTION (NOT APPLICABLE)**

### **D1012 COMMUNITY DEVELOPMENT**

#### **D1012.01 Corporate Social Investment (CSI)**

The Contractor shall demonstrate its willingness to actively participate in the social development initiatives for local Communities affected by the Contract. To this end, the Contractor shall provide details of CSI initiatives it will actively pursue under Form D15: Corporate Social Investment.

**D1013 MEASUREMENT AND PAYMENT****D10.01 Target Group Participation**

Item No	Description	Unit
<b>D10.01</b>	<b>Target Group Participation</b>	
D10.01(a)	Contract Participation Performance bonus.	Prime Cost (PC) Sum

The prime cost sum for item D10.01(a) shall cover any CPP bonus due as specified in clause D1003(e). The prime cost sum shall be expended in accordance with clause 13.5 of the FIDIC Conditions of Contract.

**Note:**

No separate payment shall be made for any costs incurred by the Contractor, whether direct or indirect, for his efforts in accomplishing the specified requirements, and which are not recoverable from the pay-items allowed. Such costs shall be deemed to have been included in the rate offered under pay sub-item C1.3.1.3 Contractor's Establishment on Site and General Obligations: Time Related Obligations.

Item No	Description	Unit
<b>D10.02</b>	<b>Stakeholder and Community Liaison and Social Facilitation</b>	
D10.02(a)	Cost of liaison, social facilitation, and PLC support.	Prime Cost (PC) Sum
D10.02(b)	Handling cost and profit in respect of sub-item D10.02(a).	Percentage (%)

The prime cost sum for item D10.02(a) shall cover the direct costs incurred by attending members of the PLC. The rate of compensation shall be fair and agreed by the Engineer in accordance with clause 13.5 of the FIDIC Conditions of Contract. The tendered percentage for sub-item D10.02(b) shall include full compensation for all handling costs and profit of the Contractor associated with sub-item D10.02(a).

The liaison with, and assistance provided by the Contractor to the PLC to perform its duties shall not be paid from the prime cost sum. The Contractor's costs to liaise with the PLC and render such assistance shall be deemed to have been included in its rate offered for pay sub-item C1.3.1.3, Contractor's Establishment on Site and General Obligations: Time Related Obligations.

Item No	Description	Unit
<b>D10.03</b>	<b>Tender Process for Targeted Enterprises</b>	
D10.03(a)	Contractor's charge for the management and execution of the Targeted Enterprise procurement process:	
D10.03(a)(i)	Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise sub-contractors for value of work ranging between R 500 000 to R 1 000 000 or if applicable of CIDB 1 and 2 contractor grading.	Number (No)
D10.03(a)(i)	Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise sub-contractors for value of work ranging between R 1 000 001 and 6 000 000 or if applicable of CIDB 3 and 4 contractor grading.	Number (No)
D10.03(a)(i)	Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise sub-contractors of above R 6 000 000 or CIDB 5 and higher contractor grading.	Number (No)
D10.03(a)(i)	Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise suppliers.	Number (No)
D10.03(b)	Targeted Enterprise Procurement Coordinator	Month

The unit of measurement for item D10.03(a) shall be the number of individual sub-contract agreements concluded with Targeted Enterprise sub-contractors and suppliers in accordance with the procurement process described in this Section D of the Specifications.

The tendered monthly rate for sub-item D10.03(b) shall include full compensation for the provision of the relevant personnel on a full-time basis to carry out the requirements in terms of sub-item D10.03(a) and the full contents of this Section D of the Specifications.

Each tendered rate shall be in full compensation for the management and execution of the Targeted Enterprise procurement process in the relevant CIDB contractor grading designation scheduled, including for the appointment of a TE Procurement Coordinator (if required), the pre-tender training of eligible Targeted Enterprises, the compilation, printing, binding and issue of the tender documents for each tender, for the advertising of each tender, for the provision of the venue and the conducting of each compulsory briefing session for tenderers, for the conducting of each tender opening process, for the adjudication of the tenders received for each tender, for the preparation of each tender adjudication report and the review thereof in conjunction with the Employer, Engineer and the PLC, for the award of each tender and for the conclusion of the sub-contract agreement with each successful Targeted Enterprise tenderer, and any other relevant requirement described in this Section D of the Specifications.

Item No	Description	Unit
<b>D10.04</b>	<b>Responsibilities of the Contractor towards Targeted Enterprises</b>	
D10.04 (a)	Contractor's establishment, management, management support, assistance, coaching, guidance, mentoring and supervision of Targeted Enterprises.	Month
D10.04(b)	Targeted Enterprise Operations Manager	Person Month

The tendered monthly rate for sub-item D10.04(a) shall include full compensation for the registration of all the sub-contract agreements and the management of all the Targeted Enterprise sub-contracts, including for the provision of the necessary management, support, coaching, guidance, mentoring and supervision of the Targeted Enterprise sub-contractors.

The tendered monthly rate for sub-items D10.04(b) shall include full compensation for the provision of the relevant personnel on a full-time basis to carry out the requirements in terms of sub-item D10.04(a) and the full contents of this Section D of the Specifications.

Item No	Description	Unit
<b>D10.05</b>	<b>Construction Works by Targeted Enterprises</b>	
D10.05 (a)	Payments associated with the construction works executed by Targeted Enterprise sub-contractors of CIDB 1 and 2 contractor grading designation appointed in terms of Section D of the Specifications.	Provisional (Prov) sum
D10.05 (b)	Handling costs and profit in respect of payment associated with sub-item D10.05(a).	Percentage (%)
D10.05 (c)	Fluctuation between the main contractor's rates and that of the Targeted Enterprise sub-contractors.	Lump Sum (LS)
D10.05 (d)	Preliminary and General Obligations of Targeted Enterprise sub-contractors appointed in terms of Section D of the Specifications.	Lump Sum (LS)

Expenditure under sub-items D10.05(a) shall be in accordance with clause 13.5 of the FIDIC Conditions of Contract.

The Provisional Sum for sub-item D10.05(a) is provided to cover the cost of the construction works, including preliminary and general obligations, carried out by the Targeted Enterprise sub-contractors of CIDB 1 and 2 contractor grading designation as certified by the Engineer, in separate payments for each Targeted Enterprise in accordance with Section D of the

Specifications. Expenditure under sub-item D10.05(a) shall be limited to the Provisional Sum amount stated in the Pricing Schedule. Construction works by Targeted Enterprise sub-contractors of CIDB 1 and 2 contractor grading designation, exceeding the Provisional Sum amount shall be measured for payment from the applicable work items in the Contractor's pricing schedule.

The tendered percentage for sub-item D10.05(b) is the percentage of the amount spent under sub-item D10.05(a) and shall include full compensation for the Contractor's handling costs, profit or any other costs associated with the work conducted by the Targeted Enterprise sub-contractors, which are not provided for in other pay-items.

The Lump Sum tendered under item D10.05(c) is for fluctuation of the Targeted Enterprise sub-contractor rates more than the contractor's tendered rates, for work not paid under items D10.05(a). Payment of the Lump Sum shall be on a pro rata basis to provide compensation for the fluctuation between the tendered rates of the Main Contractor and that of the Targeted Enterprise sub-contractors until the Lump Sum is depleted. Any costs incurred due to fluctuation in tendered rates more than that tendered for under item D10.05(c) will be for the Contractor's account. Item D10.05(c) is applicable where the Target Enterprise sub-contractor's tender amount is higher than the Main Contractor's tender amount. The Lump Sum will cover the fluctuation for all the tendered rates of the sub-contractors.

The Lump Sum tendered under item D10.05(d) is for the Preliminary and General Obligations of Targeted Enterprise sub-contractors (excluding CIDB 1 and 2 contractor grading designation) paid from the Provisional Sum. Payment of the Lump Sum shall be on a pro rata basis to provide compensation for the P&Gs of Targeted Enterprise sub-contractors until the Lump Sum is depleted. Any costs incurred for the P&Gs of Targeted Enterprise sub-contractors more than that tendered for under item D10.05(d) will be for the Contractor's account.

Item No	Description	Unit
<b>D10.06</b>	<b>Training, coaching, guidance, mentoring and assistance</b>	
D10.06 (a)	Training Costs	
<del>D10.06 (a)(i)</del>	<del>Accredited NQF training.</del>	<del>Provisional (Prov) sum</del>
D10.06 (a)(ii)	Accredited generic skills training.	Provisional (Prov) sum
D10.06 (a)(iii)	Community skills training	Provisional (Prov) sum
D10.06 (a)(iv)	CTROM maintenance specific training	Provisional (Prov) sum
D10.06 (a)(v)	Handling cost and profit in respect of sub-items D10.06(a)(i), (ii), and (iii) and (iv).	Percentage (%)
D10.06 (b)	Student experiential training.	
D10.06(b)(i)	Student stipends	N/A
D10.06(b)(ii)	Provision of experiential training	N/A
D10.06 (c)	Other costs during training.	Provisional (Prov) sum
D10.06(d)	Training venue.	Lump Sum

The Provisional Sums under sub-items D10.06(a) shall be paid in accordance with the provisions of sub-clause 13.5 of the FIDIC Conditions of Contract. The Provisional Sums shall include all charges for the provision and delivery of the service including an accredited Training Service Provider (if required), learning material and any other requirement as described in Section D1010 of the Specifications.

The rate tendered under sub-item D10.06(a)(v) shall be deemed to cover all costs required to organise accredited trainers to provide training and shall include the Contractor's handling cost, profit, record keeping, reporting and all other costs associated with sub-items D10.06(a)(i) - iv).

The prime cost sum under sub-item D10.06(b)(i) shall be paid in accordance with the provisions of sub-clause 13.5 of the FIDIC Conditions of Contract. The prime cost sum shall cover the monthly stipend as prescribed by the Employer to be paid to students receiving experiential training.

The unit of measurement for sub-item D10.06(b)(ii) shall be the person-month, with pro-rata payments made for partial months for training provided based on 23 workdays per month.

The rate tendered under sub-item D10.06(b)(ii) shall include full compensation for the Contractor to provide training to the students provided by the Employer inclusive of all costs to communicate with the Employer and any other body or organisation in respect of work assigned to the students. The rate tendered shall include telephone calls and charges, stationery and information technology hardware, software, connection or licence costs and lost production, profits, and all other incidentals as well as all administrative and overhead costs.

The Provisional Sum under pay-item D10.06(c) shall be paid in accordance with the provisions of sub-clause 13.5 of the FIDIC Conditions of Contract. The Provisional Sum shall cover the Contractor's costs for payment of wages of employed trainees attending training courses during working hours, for the provision of meals to trainees, for provision of transport and for all other incidentals required for the trainees and approved by the Engineer. No mark-up is payable to the Contractor under this item.

The unit of measurement for pay-item D10.06(d), shall be the Lump Sum. The sum tendered shall include full compensation for the provision of the training venue, for all necessary lighting, power, furniture, stationery, consumables and study material and all other costs necessary to maintain the venue for the duration of the contract. Payment of the Lump Sum shall be made in two instalments as follows:

The first instalment, 75% of the Lump Sum, shall be paid after the Contractor has met all his obligations regarding the provision of the training venue as specified.

The second and final instalment, 25% of the Lump Sum, shall be paid after the provision of all the accredited training as specified in the document.

No payment, nor pro rata payment, shall be made for trainees that, once selected, do not attend or only partially complete structured training courses. The Contractor's own staff may attend the courses provided. However, such attendants from the Contractor's staff shall not be considered for measurement and payment purposes unless they also qualify as Targeted Labour.

Item No	Description	Unit
D10.08	Provisional Sum for Nominated Subcontractor	
D10.08(a)	Nominated Subcontract Contract Participation Works and Services (including Provisional Sums and allowances in the Nominated Subcontract for Schedule D series	Provisional (Prov) Sum
D10.08(b)	Handling costs and profit in respect of payment associated with subitem D10.08.(a)	Percentage (%)

Expenditure under subitems D10.08 shall be in accordance with clause 13.5 of the FIDIC Conditions of Contract.

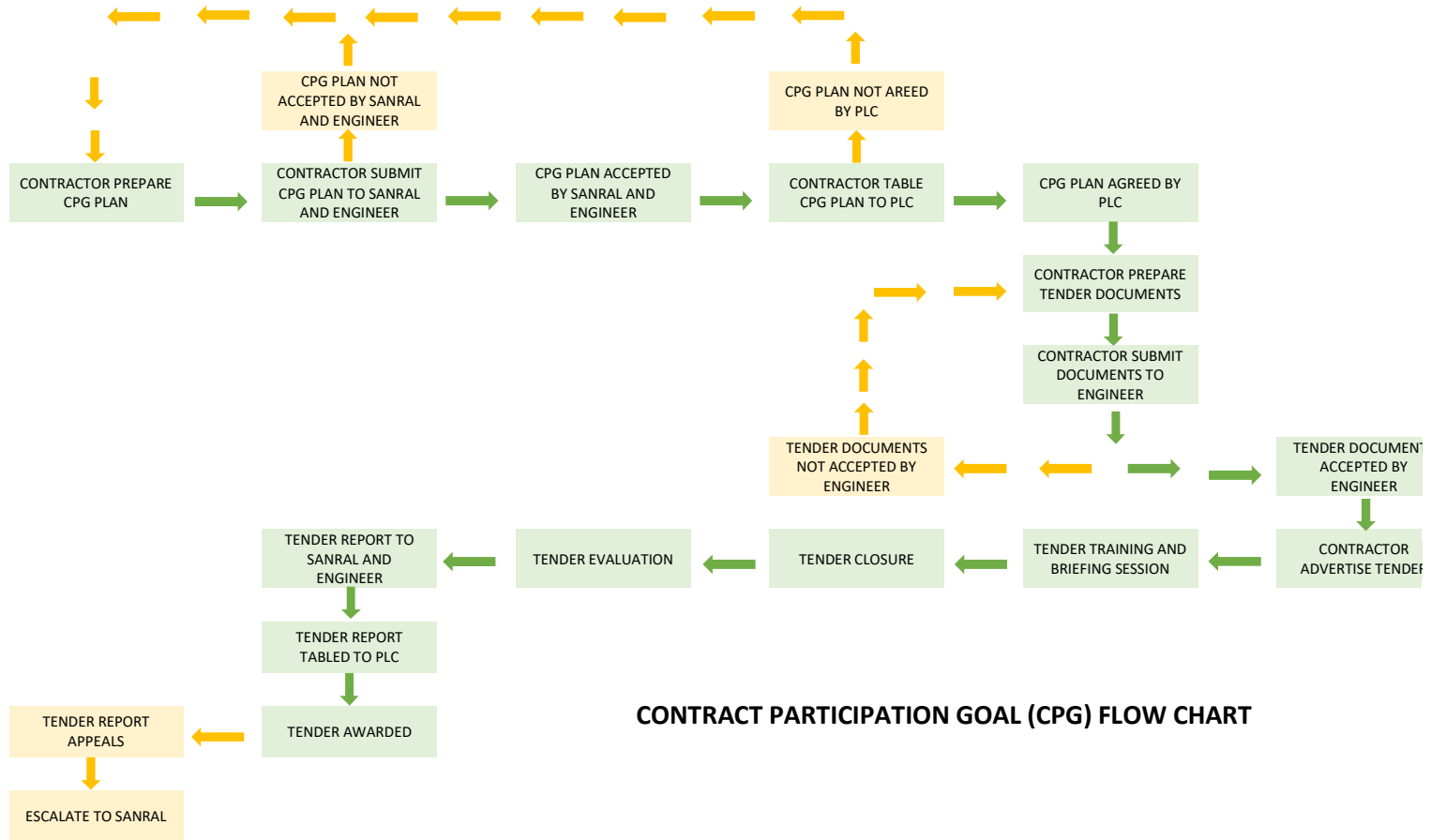
The provisional sum for subitem D10.08 is provided to cover the cost of all the requirements and obligations of this specification for Stakeholder and Community Liaison, Targeted Labour employment and Targeted Enterprise subcontracting for the Nominated Subcontractor that will be selected in a separate tender process. Expenditure under subitem D10.08 shall be limited to the provisional sum amount stated in the Pricing Schedule.

The tendered percentage for subitem D10.08(b) is the percentage of the amount actually spent under subitem D10.08(a) and shall include full compensation for the Contractor's handling costs, profit or any other costs associated with the work conducted by the Nominated Subcontractor's Targeted Enterprise subcontractors.

**ANNEXURE X1: CONTRACT PARTICIPATION GOAL (CPG) PLAN FORMAT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**



**CONTRACT PARTICIPATION GOAL (CPG) FLOW CHART**

*Contractor Logo and details*

**Contract Participation Goal Plan**

*SANRAL Contract Number: XXXX*

*Contract Name: XXXX*

*(SANRAL Logo)*



Author:  
Date:  
Version



1. INTRODUCTION

2. OBJECTIVE

3. TARGETED ENTERPRISES

3.1 LIST OF WORK PACKAGES FOR TARGETED ENTERPRISES

3.2 LIST OF WORK PACKAGES FOR MAIN CONTRACTOR

Table 1: CPG Expenditure Breakdown

<b>Project Number</b>				
<b>Project Name</b>				
<b>Designated Groups</b>	<b>Final Contract Value</b>	<b>R</b>		
	<b>Min (TE) CPG Target</b>	<b>%</b>		
	<b>Min (TE CPG Target Amount</b>	<b>R</b>		
<b>Description of CPG Category</b>	<b>CPG Target as per Contract</b>		<b>CPP Planned Achievement</b>	
	<b>Min. Target % as per Contract</b>	<b>Target Amount</b>	<b>Min. Allocated % as per Market Analyses</b>	<b>Expected Amount</b>
<b>Targeted Labour (TL)</b>	<b>Min. xx% of Final Contract Value</b>	<b>R</b>	<b>%</b>	<b>R</b>
Youth				
Women				
Disabled				
Other				
<b>Targeted Enterprise (TE)</b>	<b>Min. xx% of Final Contract Value</b>	<b>R</b>	<b>%</b>	<b>R</b>
Youth				
Women				
Military Veterans				
Disabled				
CIDB 1 and 2				
CIDB 3 and 4				
Other				

**3.3 BREAKDOWN OF WORK PACKAGES**

The table below describes the work package breakdown with reference to Designated Groups and Functionality:

**Table 4: Breakdown of Work Packages**

<b>Project Number</b>																
<b>Project Name</b>																
<b>Contract Price</b>																
<b>CPG Target %</b>																
<b>CPG Target Value</b>																
No.	Type of Work Package	EME or QSE	TE Amount	% of CPG Value	Proposed CIDB Grading	Tender Value Limit	Proposed No. of Work	Proposed TE Target Group Amount					CIDB Expenditure		Comment	
								Black Youth	Black Woman	Black Military	Black Disabled	Other	Black 1&2CE	Black 3&4 CE		
<b>TE Sub-contractors</b>																
1																
2																
3																
<b>TE Suppliers and Service Providers</b>																
4																
5																
6																
<b>TE Sub-contractor Sub-total</b>																
<b>TE Supplier/Service Provider Sub-total</b>																
<b>Provisional Total</b>																
<b>Provisional %</b>																
<b>Target Amount</b>																
<b>Target %</b>																

### 3.4 SCHEDULE OF WORKS AND CPG EXPENDITURE PLAN

3.4.1 Schedule of work (Insert Programme)

3.4.2 CPG Expenditure Plan

**Table 3: Example: CPG Expenditure Plan**

<b>Planned CPG Expenditure</b>					
<b>Final Contract Value</b>	R 100 000 000				
<b>CPG (TE) Value</b>	R 30 000 000				
<b>Timeline</b>	<b>2021/2022</b>	<b>2021/2022</b>	<b>2021/2022</b>	<b>2021/2022</b>	<b>Total</b>
<b>Project Expenditure</b>	R 20 000 000	R 30 000 000	R 30 000 000	R 20 000 000	R 100 000 000
<b>Work Packages (CPG %) Expenditure</b>	R 6 000 000	R 9 000 000	R 9 000 000	R 6 000 000	R 30 000 000
<b>Cumulative % Spend</b>	20%	50%	80%	100%	
<b>Cumulative Amount Spend</b>	R 6 000 000	R 6 000 000	R 6 000 000	R 6 000 000	R 6 000 000
<b>Package 1</b>	R 2 000 000				
<b>Package 2</b>	R 2 000 000				
<b>Package 3</b>	R 2 000 000				
<b>Total</b>	<b>R 6 000 000</b>	R	R	R	R

### 3.5 TARGETED ENTERPRISES PROCUREMENT PROGRAM

**Table 4: Example: Targeted Enterprise Procurement program**

<b>Item</b>	<b>Activity Name</b>	<b>Duration (Days)</b>	<b>Start</b>	<b>Finish</b>

### 3.6 PROCEDURES FOR TARGETED ENTERPRISES SUB-CONTRACTING (AS PER SECTION D1000 OF THE SPECIFICATIONS)

3.6.1 Tender Preparation

3.6.1.1 Compilation of TE Work Packages

3.6.1.2 Establishment of a Help Desk

3.6.1.3 Market Analysis and Resources and Skills Audit

3.6.1.4 Compilation of Tender Documents

3.6.2 Tender Process

**3.6.2.1 Advertising of Works Packages**

**3.6.2.2 Tender Briefing Sessions**

**3.6.2.3 Minimum Tender Submission Documents**

**3.6.2.4 Tender Closure and Opening of Tenders**

**3.6.3 Tender Evaluation**

**3.6.3.1 Eligibility**

**3.6.3.2 Functionality**

**3.6.3.3 Price and Preference**

**3.6.3.4 Compliance Check**

**3.6.4 Appointment of Successful Targeted Enterprise**

**3.6.4.1 Price and Rates Discussion**

**3.6.4.2 Sub-contract Agreement**

**4. TARGETED LABOUR**

**4.1 APPOINTMENT OF TARGETED LABOUR**

**5. TRAINING DEVELOPMENT AND IMPLEMENTATION PLAN**

**5.1 GENERAL OVERVIEW**

**5.2 PURPOSE OF THE TRAINING INTERVENTIONS**

**5.3 PROPOSED TRAINING FOR TARGETED ENTERPRISES AND TARGETED LABOUR**

The table below depicts the proposed training for the Targeted Enterprises.

**Table 5: Proposed Targeted Enterprise Training**

<b>Training Summary</b>							
<b>No.</b>	<b>Course Content</b>	<b>Facilitator or Mentor</b>	<b>No. of Participants</b>	<b>Duration of the Course</b>	<b>Training Type</b>	<b>Start Date</b>	<b>Comments</b>
1							
2							
3							
4							
5							

The table below depicts the proposed training for the Targeted Labour.

**Table 6: Proposed Targeted Labour Training**

<b>Training Summary</b>
-------------------------

No.	Course Content	Facilitator or Mentor	No. of Participants	Duration of the Course	Training Type	Start Date	Comments
1							
2							
3							
4							
5							
Etc.							

**5.4 TRAINING METHODOLOGY**

**5.5 SELECTION OF PARTICIPANTS**

**5.6 TARGETED PARTICIPANTS**

**5.7 TRAINING MATERIALS**

**5.8 TRAINING TIMES**

**5.9 TRAINING IMPLEMENTATION PLAN**

**5.10 SUPPORTING DOCUMENTS**

**ANNEXURE X2: PROJECT LIAISON COMMITTEE AND PROJECT LIAISON OFFICER FORMS**

**ANNEXURE X3: OTHER STANDARD FORMS**

<b>TABLE OF CONTENTS</b>	<b>PAGE</b>
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<b>FORM A2: PROJECT LIAISON COMMITTEE – RULES, RESPONSIBILITIES AND DUTIES (DERIVED FROM D1004.03)</b>	<b>C-422</b>
<b>FORM A3.1: CHECKLIST – PROJECT LIAISON COMMITTEE – MEMBER APPOINTMENT</b>	<b>C-429</b>
<b>FORM A3.2: PROJECT LIAISON COMMITTEE – MEMBER LIST</b>	<b>C-431</b>
<b>FORM A4: CHECKLIST – PROJECT LIAISON OFFICER – APPOINTMENT</b>	<b>C-432</b>
<b>FORM A5: CHECKLIST – PROJECT LIAISON COMMITTEE – MEETINGS</b>	<b>C-433</b>
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<b>FORM C: CHECKLIST – TARGETED ENTERPRISE CONTRACT ADMINISTRATION</b>	<b>C-438</b>

**FORM A1: PROJECT LIAISON COMMITTEE – MEMBER NOMINATION FORM**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes to Nominators and Nominees:**

- a) General Principles of Membership:
  - i) Membership is open to any person residing within the boundaries of the Project Area and that are duly nominated by their constituency.
  - ii) Persons nominated as co-opted members do not necessarily have to reside within the boundaries of the Project Area (see explanation in c) below).
  - iii) The nomination process will be conducted in consultation with the Local Municipalities within the Project Area.
- b) Nominations for Membership
  - i) Nominators will submit this prescribed nomination form and include the following information:
    - a. Name of the nominee,
    - b. Name of the proposer and five (5) seconders,
    - c. Residential address of the nominee,
    - d. Constituency whom the nominee will represent, and
    - e. Acceptance of nomination by the nominee.
- c) Co-opted Members
  - i) Co-opted members are members that the PLC chooses to add in addition to PLC members selected through the representative nomination process.
  - ii) Co-opted members may include a PLC member from the RRM PLC within the Project Area, Councillors, and specialists such as environmental specialists, etc.
  - iii) Co-opted members will have limited participation rights in PLC meetings, will not have voting rights and will not receive any seating allowance for participating in the PLC meeting.
- d) Duration of Membership
  - i) The duration of a nominee's membership of the PLC will depend on the duration of the project or the duration of the PLC, whichever occurs first.
  - ii) A nominee's membership will end with immediate effect in terms of the Rules of Engagement for PLC members.

**1. Details of individual or organisation making the nomination:**

I, ....., representing .....  
hereby nominate .....  
to be a member of the PLC for Project .....

Signature ..... Date .....



**2. Details of the seconders (individuals supporting the nomination):**

	Name	Surname	Organisation	Signature
1				
2				
3				
4				
5				

**3. Details of the individual accepting the nomination (nominee):**

Name and Surname	
Organisation	
Residential Address	
Ward Number	
Municipality	

I, ....., I.D. number ..... hereby accept the nomination to be a member of the PLC for Project .....

.....

I further accept to be bound by the rules, responsibilities and duties prescribed for the Project Liaison Committee Members and the Project Liaison Officers and will always act in good faith.

Signature ..... Date .....

**Witnesses:**

Name and Surname ..... Signature .....

Name and Surname ..... Signature .....

**FORM A2: PROJECT LIAISON COMMITTEE – RULES, RESPONSIBILITIES AND DUTIES (DERIVED FROM D1004.03)**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

The PLC is the official communication channel through which SANRAL, the Engineer, Contractor and project Stakeholders and affected Communities communicates on project matters. This platform is also used to communicate the impact that the project has or may have on project Stakeholders and the affected Communities. This part of Section D of the Specifications describes the general processes pertaining to the PLC, as well as its role and responsibilities.

**1. Establishment of the PLC**

The PLC will be established prior to commencement of the Contract or as soon as possible by SANRAL. The PLC consists of SANRAL, the Engineer, Contractor and representatives of project Stakeholders and affected Communities. To ensure that all relevant Stakeholders are represented in the PLC, SANRAL did, or will, consult with the Executive Mayor's office, as well as with the LED Department of the Local Municipalities in the Project Area. Once the PLC has been established, the Employer's further Stakeholder engagement activities shall not prevent the Contractor from continuing with construction.

Typical Stakeholder representation on the PLC may include:

- a. A PLC member from the relevant RRM PLC.
- b. Local Municipality LED Office.
- c. Traditional leadership representation.
- d. Forums representing people with disabilities.
- e. Forums representing women.
- f. Forums representing youth.
- g. Forums representing business sector.
- h. Forums representing transport sector.
- i. Any other Stakeholder forum/organisation recognised by SANRAL and the Local Municipality's LED Office.

Every forum/organisation/constituency may have one (1) representative on the PLC, which representation will be confirmed by a duly signed nomination form.

It should be noted that the PLC is not a political platform. While Councillors may be invited to some PLC meetings, they may not be PLC members and hence, will not have voting rights when attending a PLC meeting.

**2. Seating Allowance for PLC Members**

PLC membership is voluntary and PLC members will not be remunerated for any time spent or work done associated with representing their constituency on the PLC.

Provision has been made in the Contract for a seating allowance (stipend) to PLC members for actual costs incurred in executing their PLC duties (other than time or work related). The Contractor will determine and table to the PLC a realistic seating allowance which will be substantiated by an outline of the anticipated actual costs envisaged to be incurred by PLC members.

The seating allowance will be increased annually based on the CPI figure contained in Table B2 of Statistical Release P0141 by StatsSA.

**3. Induction of the PLC**

SANRAL will conduct an induction meeting with the PLC to acquaint PLC members with the following information:

- a) SANRAL's Horizon 2030 Strategy.
- b) SANRAL's Fourteen Point Plan.
- c) The role and responsibilities of PLC members.
- d) SANRAL's Transformation Policy.
- e) How the Transformation Policy impacts on SMMEs.
- f) Relevant details of the Contract, e.g.
  - i) Start and end dates
  - ii) Important milestones
  - iii) CPG targets
  - iv) Envisaged Targeted Enterprise packages
  - v) Envisaged work for other SMMEs (non-CPG).

#### **4. Rules of Engagement for the PLC**

In the execution of their duties, members of the PLC shall adhere to the undertakings listed below and the Contractor shall inform the Engineer of any transgression of these undertakings.

- a) General Matters and Membership
  - i) A PLC member may not be a politically elected representative, and political party representation will not be allowed in the PLC.
  - ii) Ward Councillors may interact with the project team through the Mayor's Office.
  - iii) If required, and in consultation with SANRAL, a Political Steering Committee (PSC) may be established to address political matters. A PSC will only be established where the Project Area traverse over more than one municipal area.
- b) Term of Office for the PLC
  - i) The duration of PLC members' participating in the PLC (term of office) shall depend on the duration of the project.
  - ii) If SANRAL finds the performance of a PLC member to be below expectation or their conduct to be unacceptable, the affected member will be discharged from their obligations and a new nomination process shall commence.
- c) Targeted Enterprise and Targeted Labour

PLC members shall:

  - i) ensure that they, or companies in which they hold equity, will not tender on the Contract for any work or sub-contract that may be issued. Should they tender, this will be treated as a conflict of interest and the tender proposal submitted will not be evaluated.
  - ii) not have private or business interests in any of the sub-contract tenders tabled to the PLC or considered in this Contract.
  - iii) shall recuse themselves from discussions that deal with a sub-contract tender if any other member is of the opinion that a member's participation in deliberations, which is rightly or wrongly construed as improper or irregular, may lead to the award of a sub-contract to a tenderer known to the member or to the member itself.
  - iv) recuse themselves from the operations of the PLC following a situation as described in paragraphs ii) above and shall cease to be a PLC member for this Contract.
  - v) during the tender and tender evaluation processes, neither deliberately favoured nor prejudiced a person or tenderer, as intended, or contemplated in treasury Regulation 16, A8.3 (a), (b) & (c).
  - vi) ensure that no conflict of interest arises from members' involvement in the PLC and potential involvement in targeted labour recruitment and/or targeted enterprises

procurement and/or any other supplier/sub-contractor/service provider procurement or involvement in the contract.

- d) Confidentiality
  - i) PLC members shall accept that all information, documentation, and decisions regarding any matter serving before the PLC are confidential and undertake not to communicate decisions or discussions of PLC meetings to external or internal parties unless so directed and approved by the Project Manager.
  - ii) Information for public dissemination shall be clearly indicated by the committee to ensure that sensitive information is only disseminated to the correct audience.
- e) Removal from Office
  - i) PLC members who violate the provisions of these Rules of Engagement for PLCs will be removed from their role as a PLC member at the sole discretion of SANRAL.
  - ii) SANRAL reserves the right to recover any costs from PLC members whose actions can be regarded as detrimental to SANRAL or to the execution of the project.
  - iii) SANRAL also reserves the right to recommend criminal prosecution if the offence warrants such action.
  - iv) SANRAL reserves the right to dissolve the entire PLC should it believe that such an action is in its best interest, or that of the project. SANRAL will not be obliged to reconstitute the PLC if such a dissolution occurs.

## 5. Responsibilities and Duties of the PLC

The PLC will execute specific duties during the design and construction phases of the project.

Some of the PLC's duties during the design and construction stages overlap and hence, for completeness, a description of the PLC's duties in both project stages is provided here.

The PLC will execute the following duties:

- a) Project Design Stage
  - i) Meet as often as required to discuss and resolve the project's design stage matters which are of interest or concern to the parties to the PLC.
  - ii) Peruse the Project Liaison Committee rules, responsibilities and duties outlined in this Form and agree on the rules, responsibilities, and duties of, and procedures to be followed by, the PLC to fulfil its duties.  
**Note:** The principles outlined in this Form shall not be amended, but duties and procedures may be altered to be project specific and to improve the functionality of the PLC.
  - iii) Act in accordance with the agreed terms of reference for the PLC.
  - iv) Inform SANRAL of any training that project Stakeholder and affected Community representatives of the PLC require to execute their duties.
  - v) Assist the Engineer to source suitable candidates, based on SANRAL's qualifying criteria, for the position of PLO.
  - vi) Observe and verify that the qualifying criteria and procedures applied by the Engineer to select and employ the PLO were executed in a fair and transparent manner and were within the prescripts of the relevant labour legislation and regulations.
  - vii) Assist the Engineer to identify the project's Target and Project Area(s) from which Targeted Labour and Targeted Enterprises could be employed and sub-contracted, respectively.
  - viii) Assist the Engineer to identify the project's Target Groups for inclusion in the Tender Documents and agree to and support the identified Target Groups.
- b) Project Construction Stage
  - i) Meet formally prior to SANRAL's monthly site meeting, or as may be required, to discuss and resolve project matters which are of interest or concern to the parties to the PLC.

- ii) Assist the Contractor to establish the selection criteria and process to employ Targeted Labour
- iii) Assist the Contractor to identify the eligibility, functionality, preference, and compliance criteria to select and sub-contract Targeted Enterprises.
- iv) Agree to and support the Databases compiled by the PLO and the Contractor from which Targeted Labour will be selected and employed and Targeted Enterprises will be sub-contracted, respectively.
- v) Verify that the criteria and methodologies applied by the Contractor to select and employ Targeted Labour and sub-contract Targeted Enterprises are executed in a fair and transparent manner and are within Government legislation and regulations and SANRAL's Policies.
- vi) Verify that the conditions of employment and the conditions of sub-contracting, in the employment of Targeted Labour and sub-contracting of Targeted Enterprises are applied in a fair and transparent manner and according to SANRAL's employment and sub-contracting requirements.
- vii) Make recommendations to the Contractor on the training needs, eligibility criteria and selection criteria for the provision of training to Targeted Labour, Targeted Enterprises, Designated Groups, project Stakeholders and the affected Communities.
- viii) Verify that training and skills development programmes, which the Contractor committed to, are implemented, and executed as approved and intended.
- ix) Inform the entities whom they represent of any project matters which the respective party to the PLC wishes to communicate with each other.
- x) Inform the entities whom they represent of any project matters that are impacting or may impact, either positively or negatively, on the respective parties to the PLC.
- xi) Inform the Contractor of Stakeholder and/or Community requests and/or needs, which could possibly be addressed within the project's Scope of Work.
- xii) Inform the SANRAL, the Engineer and Contractor of any road safety concerns within the Project Area(s) and advise them of possible mitigating measures and/or road safety programs that will be most suitable for acceptance by the affected Communities to promote road safety.
- xiii) Agree on a dispute resolution mechanism to resolve any disputes that may arise between the parties to the PLC.
- xiv) Assist parties to the PLC to liaise with their respective entities to resolve any disputes amongst the parties which may occur due to the project.

## **6. PLC Meetings**

### **A) FREQUENCY**

- i) Meetings will be conducted monthly or as required by the Stakeholders or the project matters.

### **B) NOTICE OF MEETINGS**

- i) The notice of the PLC meeting shall be given at least seven (7) calendar days prior to the meeting date.
- ii) Where meetings have been diarised over a period by the PLC, it shall be the duty of each PLC member to ensure his/her attendance on the set dates.
- iii) Where a PLC member has missed any meeting, he/she bears the onus of establishing the date and venue of the next meeting.

### **C) VENUE**

- i) The venue for PLC meetings shall be the project site office or any other venue agreed to by the members of the PLC and approved by SANRAL.

- ii) During the Covid 19 lockdown, or any other lockdown as announced by government, the meetings shall be held on an online platform such as WhatsApp, Teams, Zoom or similar.

#### **D) AGENDA**

- i) An agenda shall be made available or displayed to all participants at the commencement of such meetings or the minutes of the previous meeting will serve as the agenda of such meetings.
- ii) The agenda shall not be amended without prior approval from SANRAL.

#### **E) CHAIRPERSON**

- i) PLC meetings shall be chaired by SANRAL which will typically be the SANRAL's Project Manager, or a SANRAL staff member with decision--making delegation, or the Engineer.
- ii) The Chairperson shall:
  - a. chair all meetings of the PLC,
  - b. co-ordinate all the activities of PLC,
  - c. ensure that members are fulfilling their tasks as assigned by the PLC,
  - d. see to the execution of decisions taken by the PLC,
  - e. ensure the validity of members' claim for allowance,
  - f. ensure compliance of all activities of the PLC with current rules, law and general SANRAL policy, and
  - g. be a co-signatory to all official documents of the PLC.

#### **F) SECRETARIATE**

- i) The Engineer's staff shall provide a secretarial service to take minutes of PLC meetings.
- ii) Secretarial support other than taking minutes at PLC meetings shall be provided by the PLO.

#### **G) QUORUM**

- i) The quorum for PLC meetings shall be constituted by 50%+1 ratio excluding co- opted members.

#### **H) APOLOGIES AND NON-ATTENDANCE**

- i) Apologies shall be in writing except in emergency where the member apologising cannot communicate the apology in writing.
- ii) Apologies may be sent through any media agreed to prior by the PLC for example through SMS or WhatsApp messaging or similar application.
- iii) The organization, represented by a member who fails to attend three (3) consecutive meetings without an apology, will be informed in writing and asked to nominate a replacement member.

#### **I) LANGUAGE**

- i) The meetings will be conducted in English to enable all participants at the meeting to understand the discussions of the meeting.
- ii) However, care and consideration must be given to provide non-English speakers an opportunity to participate. Therefore, where desirable, any of the 11 official languages maybe used to conduct the meeting. If another language other than English is used, the minutes of the meeting will need to be transcribed, translated, and recorded in English.

**J) OTHER**

- i) The PMT shall provide a finger lunch for PLC members at PLC meetings.





**FORM A3.1: CHECKLIST – PROJECT LIAISON COMMITTEE – MEMBER APPOINTMENT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes:**

- a) The checklist consists of several sections. Only print the relevant sections.
- b) Indicate what has been completed and sign off at the end.
- c) While other individuals can assist in this process, the Project Manager (PM) remains accountable for all deliverables.
- d) All forms/records to be kept by the PM and availed to line management upon request.

Form No.	Item	Explanatory Note for Compliance Check	Responsibility	Complete (Yes/No or N/A)
<b>A3.1</b>	<b>PLC Member Appointment:</b>			
<b>1</b>	<b>Nomination forms completed.</b>	a) Form must indicate the nominee and the individual or organisation making the nomination.	Stakeholder Coordinator (SC) /Contracts Engineer (CE)	
		b) Forms circulated with the assistance of Municipality's LED office.	SC/CE	
		c) All completed forms collected from the Municipality's LED office.	SC/CE	
<b>2</b>	<b>Members selected.</b>	a) Confirm the membership of the PLC.	SC/Project Management Team (PMT)	
		b) Where there are multiple entries, the team can select the member with the highest number of nominations.	SC/PMT	
		c) Where there is an equal number of nominations, the team will request the nominating organisation to confirm the member who should join the PLC.	SC/PMT	
		d) The last alternative is to allow for a snap election in a community meeting.	SC/PMT	
		e) Communicate the PLC membership to the affected stakeholders.	SC/PMT	
<b>3</b>	<b>Formal appointment to PLC signed.</b>	a) Ensure that the PLC membership is confirmed in line with Form A3.2	SC/Project Manager (PM)	
		b) All members must be provided with a copy of the PLC Duties and Responsibilities (extract from D1004.03). The signed duties and responsibilities must be scanned and shared with all members. The PM retains a copy for future reference.	SC/PMT	
		c) Document must be signed again when the membership changes. The PM must add the version of the document to ensure that the various versions can be tracked.	PM	

Form No.	Item	Explanatory Note for Compliance Check	Responsibility	Complete (Yes/No or N/A)
<b>Stakeholder Coordinator:</b>				
<b>Name</b>		<b>Sign</b>		<b>Date</b>
<b>Project Manager:</b>				
<b>Name</b>		<b>Sign</b>		<b>Date</b>

**FORM A3.2: PROJECT LIAISON COMMITTEE – MEMBER LIST**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

<b>No.</b>	<b>Sector/Entity/Forum</b>	<b>Name and Surname</b>	<b>Signature</b>
1			
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**FORM A4: CHECKLIST – PROJECT LIAISON OFFICER – APPOINTMENT**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes:**

- a) The checklist consists of several sections. Only print relevant sections.
- b) Indicate what has been completed and sign off at the end.
- c) While other individuals can assist in this process, the Project Manager (PM) remains accountable for all deliverables.
- d) All forms/records to be kept by the PM and availed to line management upon request.

Form No.	Item	Explanatory Note for Compliance Check	Responsibility	Complete (Yes/No or N/A)
<b>A4</b>	<b>PLO Appointment:</b>			
<b>1</b>	<b>Post advertised in local media.</b>	a) Job profile prepared.	CE/PMT	
		b) Post advertised in the media.	CE/PMT	
		c) Copy of advert kept on file.	CE/PMT	
<b>2</b>	<b>Shortlisting completed.</b>	a) All CVs received collated.	CE/PMT	
		b) Shortlisting done by the PMT.	CE/PMT	
		c) PLC provided with the final shortlist.	CE/PMT	
<b>3</b>	<b>Interviews held.</b>	a) Candidates invited.	CE/PMT	
		b) Interview grid prepared.	CE/PMT	
		c) The PLC can nominate a member to sit on the interview panel as an observer to ensure transparency in the process.	CE/PMT	
		d) Formal interviews carried out.	CE/PMT	
		e) Interview scores collated.	CE/PMT	
<b>4</b>	<b>Formal appointment of PLO.</b>	a) PLO appointment letter issued.	CE	
		b) PLO employment contract signed.	CE	
		c) PLO performance agreement signed.	CE	
<b>Stakeholder Coordinator:</b>				
<b>Name</b>		<b>Sign</b>		<b>Date</b>
<b>Project Manager:</b>				
<b>Name</b>		<b>Sign</b>		<b>Date</b>

**FORM A5: CHECKLIST – PROJECT LIAISON COMMITTEE – MEETINGS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes:**

- a) The checklist consists of several sections. Only print relevant sections.
- b) Indicate what has been completed and sign off at the end.
- c) While other individuals can assist in this process, the Project Manager (PM) remains accountable for all deliverables.
- d) All forms/records to be kept by the PM and availed to line management upon request.

Form No.	Item	Explanatory Note for Compliance Check	Responsibility	Complete (Yes/No or N/A)
<b>A5</b>	<b>PLC Meeting Checklist:</b>			
<b>1</b>	<b>Attendance register completed.</b>	a)	All members of the PLC to sign the attendance register in ink.	PLO/PM
		b)	Where meetings are on an online platform such as MS Teams, the attendance list must be downloaded from that platform.	PLO/PM
<b>2</b>	<b>Quorum met.</b>	a)	The quorum for PLC meetings shall be constituted by 50% + 1 ratio excluding co-opted members.	PLO/PM
<b>3</b>	<b>Agenda approved.</b>	a)		PM
<b>4</b>	<b>Previous minutes approved.</b>	a)	Minutes must be prepared, signed off and dated by the Chairperson at the following meeting.	PLO/PM
<b>5</b>	<b>Minutes and resolutions captured.</b>	a)		RE/PLO
<b>6</b>	<b>Declaration of interest completed.</b>	a)	All members of the PLC to sign the DoL in ink.	PLO/PM
<b>Stakeholder Coordinator:</b>				
<b>Name</b>		<b>Sign</b>		<b>Date</b>
<b>Project Manager:</b>				
<b>Name</b>		<b>Sign</b>		<b>Date</b>

**FORM A6: PROJECT LIAISON COMMITTEE – DECLARATION OF INTEREST**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

**Notes:**

- a) This declaration of interest shall be signed by all attendees at every PLC meeting.

<b>THE SOUTH AFRICAN NATIONAL ROADS ANGENCY LTD</b>		
<b>PROJECT LIAISON COMMITTEE - DECLARATION OF INTEREST</b>		
<p>We, as members of the PLC and persons present in the meeting, hereby solemnly swear and declare that we have no private or business interest or stake in any of the Work Packages or Tender Reports tabled here today or to be discussed in this project.</p> <p>If one of us is of the opinion/view that some people may, rightly or wrongly construe as improper/irregular, his/her participation/involvement in deliberations that may lead to the award of a tender to a tenderer known to him/her, that person shall then recuse himself/herself from the proceedings/discussions that deal with that Work Package or Tender Report. Additionally, such a member shall recuse himself/herself from the operations of this PLC going forward and shall cease to be a PLC member for this project.</p> <p>We certify that we, during the process neither deliberately favoured nor prejudiced and person or tenderer, as intended or contemplated in treasury Regulation 16, A8.3 (a), (b) &amp; (c).</p> <p>We further accept that all information, documentation, and decisions regarding any matter serving before the Committee are confidential. We, therefore, undertake not to communicate decisions/discussions of the meeting to external or internal parties unless so directed and approved by the Project Manager.</p>		
<b>Members</b>	<b>Signature</b>	<b>Date</b>

**FORM B: CHECKLIST – TARGETED ENTERPRISE TENDERING PROCESS**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

Form No.	Item	Explanatory Note for Compliance Check	Responsibility	Complete (Yes/No or N/A)	Source Document
<b>B1</b>	<b>Target Area:</b>				
<b>1</b>	<b>Target Area Defined by PLC.</b>	a)	Target Area for Targeted Labour and Targeted Enterprises identified and disseminated to the PLC.	PLO/PM	
		b)	Target Groups identified and disseminated to the PLC.	PLO/PM	
<b>2</b>	<b>Database of Contractors and Suppliers.</b>	a)	Database criteria setup and disseminated to the PLC.	PLO/PM	
		b)	Signed off database criteria handed over to PLC.	PLO/PM	
<b>B2</b>	<b>Tender Phase:</b>				
<b>1</b>	<b>Tender Advert.</b>	a)	Copy of advert on file.	Contractor	
		b)	Proof of publication in selected local publications.	Contractor	
		c)	Proof of publication on SANRAL website.	Contractor	
<b>2</b>	<b>Tender Document.</b>	a)	Copy of specification available on file, copy of the Tender CD, or printed.	Contractor	
<b>3</b>	<b>Clarification Meeting Attendance register.</b>	a)	Attendance register signed by all attendees of the clarification meeting	Contractor	
<b>4</b>	<b>Clarification Meeting Minutes.</b>	a)	Minutes must be prepared, signed off and dated by the Chairperson within 14 days of the date of the meeting	Contractor	
<b>5</b>	<b>Clarification Meeting Presentation.</b>	a)	Copy of the presentation on file.	Contractor	
<b>6</b>	<b>Addenda</b>	a)	All addenda issued must be recorded on the file.	Contractor	
		b)	Proof (e-mail) of those persons that the addenda was sent to (if applicable).	Contractor	
<b>7</b>	<b>Register of tenders issued (if applicable).</b>	a)	Record the names of persons / companies that collected tender	Contractor	

Form No.	Item	Explanatory Note for Compliance Check	Responsibility	Complete (Yes/No or N/A)	Source Document
		documents (website/by hand).			
<b>B3</b>	<b>Tender Opening:</b>				
<b>1</b>	<b>Register of Tenders Received.</b>	a) Record the names of persons / companies that submitted tender offers.	Contractor		
<b>2</b>	<b>Tender Opening, Declaration of Interest.</b>	a) Declaration by SANRAL officials at the opening.	Contractor		
<b>3</b>	<b>Tender Opening, Attendance Register.</b>	a) Record the names of persons present at the opening of tenders.	Contractor		
<b>4</b>	<b>Register for late tenders received.</b>	a) Record names and time of late tenders received.	Contractor		
<b>5</b>	<b>Tender Opening, Opening Data.</b>	a) Register of the opening of the Technical Offer on the Tender Data sheet.	Contractor		
<b>B4</b>	<b>Tender Evaluation:</b>				
<b>1</b>	<b>Extension of validity period.</b>	a) Confirmation of issue of letters of extension of validity period.	Contractor		
		b) Confirmation of response on extension of validity period by the bidders.	Contractor		
<b>2</b>	<b>Declaration of Interest.</b>	a) All members of the Bid Evaluation Committee to sign the DoL in ink.	Contractor		
<b>3</b>	<b>Attendance Register.</b>	a) All members of the BEC to sign the attendance register in ink.	Contractor		
<b>4</b>	<b>Minutes</b>	a) Minutes must be prepared, signed off and dated by the Chairperson within 14 days of the date of the meeting.	Contractor		
<b>5</b>	<b>Signed evaluation report.</b>	a) Report signed by the Chairperson of the BEC detailing deliberations and discussions of the BEC meeting.	Contractor		
<b>6</b>	<b>PPPFA Scoring sheet</b>	a) Scoring sheet detailing the scores of all tenders evaluated as per the PPPFA.	Contractor		
<b>7</b>	<b>CSD Compliance Report.</b>	a) Printout of the CSD Report for compliance verification for the successful tenderer.	Contractor		
<b>8</b>	<b>CIDB grade confirmation (if applicable).</b>	a) Verification of active status.	Contractor		
		b) JV calculator for Joint Ventures.	Contractor		



Form No.	Item	Explanatory Note for Compliance Check		Responsibility	Complete (Yes/No or N/A)	Source Document
9	<b>B-BBEE Certificate.</b>	a)	B-BBEE Certificate of winning tenderer on file for verification of preference points.	Contractor		
10	<b>SANRAL List of Restricted Bidders.</b>	a)	Verification that the winning tenderer is not restricted from doing business with SANRAL.	Contractor		
11	<b>Clarification correspondence after tender closing (individual tenderers or all).</b>	a)	All correspondence relating to RFT correction of arithmetic errors/balancing of rates etc.	Contractor		
12	<b>Report for the award of the contract.</b>	a)	Report detailing information from tender phase to evaluation phase, and a recommendation with motivation for the approval of the winning tenderer.	Contractor		
13	<b>Review Report.</b>	a)	Receive high level reports and ensure transparency in the appointment of Targeted Enterprises. The reports must exclude sensitive evaluation information.	PLC /PLO/PM	Report not to be supplied to PLC*.	
<b>B5</b>	<b>Award of Contract:</b>					
1	<b>BAC Declaration of Interest.</b>	a)	All members of the BAC to sign the DoL in ink.	Project Bid Adjudication Committee Secretariat (PBAC)		
2	<b>BAC Attendance Register.</b>	a)	All members of the BAC to sign the attendance register in ink.	PBAC Secretariat		
3	<b>BAC Minutes.</b>	a)	Minutes must be prepared, signed off and dated by the Chairperson within 14 days of the date of the meeting.	PBAC Secretariat		

**FORM C: CHECKLIST – TARGETED ENTERPRISE CONTRACT ADMINISTRATION**

**CONTRACT SANRAL N.017-024-2019/1**

**FOR THE OPERATIONS AND MAINTENANCE OF THE TOLL PLAZAS ON THE N17 TOLL ROAD**

<b>Form No.</b>	<b>Item</b>	<b>Explanatory Note for Compliance Check</b>	<b>Responsibility</b>	<b>Complete (Yes/No or N/A)</b>	<b>Source Document</b>
<b>C</b>	<b>Contract Administration Phase</b>				
<b>1</b>	<b>Letter of award / Letter of Acceptance.</b>	a) Copy of letter issued to the successful bidder.	Contractor		
<b>2</b>	<b>Letters to unsuccessful bidder(s).</b>	a) Standard letter informing unsuccessful bidders of the tender outcome with proof of emails.	Contractor		
<b>3</b>	<b>Publication of award, within 7 working days from date of award.</b>	a) Proof of publication on SANRAL website.	Contractor / PLO / Project Manager		
<b>4</b>	<b>Contract document.</b>	a) Original signed contract on file.	End-User / Contractor		
<b>5</b>	<b>Closure of contract.</b>	a) Copy of close-out report (SIPDM).	End-User / Contractor		
<b>6</b>	<b>Performance report (for Engineering contracts).</b>	a) Copy of contractor performance report.	End-User / Contractor		
<b>Project Manager:</b>					
<b>Name</b>		<b>Sign</b>		<b>Date</b>	

**ANNEXURE X4:           PROFORMA SUB-CONTRACT DOCUMENT FOR TARGETED ENTERPRISES**

<https://docs.nra.co.za/otcs/cs.exe/link/19334307>

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**PART E: ANNEXURES TO CONTRACT DOCUMENT**

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Refer to electronic directory available with the applicable documents constituting Volume 4.