

TENDER REFERENCE: ROC 32-2022/23

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM.

REGIONAL OPERATIONS AND CO-ORDINATION

REGIONAL TECHNICAL OPERATIONS



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VOLUME 1

ISSUED BY:	PREPARED BY:
The Director <u>Demand</u> PO Box 48 PRETORIA 0001 Tel: 012 358-0343	The Group Head <u>Regional Operations and Coordination</u> P O Box 440 PRETORIA 0001 Tel: (012) 358 4041

Registered Name of Tenderer:	
Trading Name of Tenderer:	
Registration No. of Entity:	
Contact Person:	CoT Vendor No:
Tel. No:	E-Mail Address:
Cell No:	Fax No:
CIDB CRS Number (s):	

"NOTE: BIDDERS ARE REQUIRED TO SUBMIT ELECTRONIC COPIES OF THE BID EITHER BY MEMORY STICK/USB FLASH DRIVE TOGETHER WITH THE HARD COPY OF THE BID/PROPOSAL"

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PORTION 1: TENDER

PART T1: TENDER PROCEDURES

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T1.1 TENDER NOTICE AND INVITATION TO TENDER



ROC 32-2022/23

CITY OF TSHWANE

REGIONAL OPERATIONS AND COORDINATION

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM

Tenders are hereby invited for the above services.

Tenders will be received until **01 December 2022 at 10:00**. Tenders will be received on the closing dates and times shown, must be enclosed in sealed envelopes, bearing the applicable tender heading and reference number, as well as the closing time and due date, and must be addressed to:-

CITY OF TSHWANE

SUPPLY CHAIN MANAGEMENT

TSHWANE HOUSE

320 MADIBA STREET

PRETORIA,

0001

Tenders must be submitted in the TENDER BOX situated at
the entrance: Tshwane House , 320 Madiba street Pretoria 0001.

Upon request tenders will be opened at the latter address at the time indicated.

This tender will be evaluated according to points awarded for price and equity ownership by historically disadvantaged persons in the enterprise. The **80/20** Preference Point System will be applied to this tender.

A tender must remain open for a period of **90 days** from the closing date for the submission of tenders, during which period the tender may not be amended or withdrawn and may be accepted by the Municipality at any time during this period.

The lowest or any tender will not necessarily be accepted, and the Municipality reserves the right to accept a tender as a whole or in part.

A COMPULSORY CLARIFICATION MEETING about the proposed services will be held on

Venue: Centurion Council Chamber, cnr Basden Avenue and Rabie Street, Lyttelton

Date: 15 November 2022

Time: 10:00am.

Prospective tenderers must already be in possession of the tender document and be familiarised with the contents. The meeting with a representative of the Employer will take place on the specified date and time.

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ENQUIRIES:

Technical Enquiries:

Jaco Cronje

Tel (Office): 012 358 4899

012 358 7756 (Reception)

E-Mail: Jacocr2@tshwane.gov.za

Supply Chain Management:

Relebogile Malatswane

Tel: 012 358 2735

Email: RelebogileM@tshwane.gov.za

NOTICE 07 OF 2022

October 2022

Johhan Mettler

City Manager

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in **Annexure C of Standard for Uniformity in Engineering and Construction Works Contracts (Board Notice 423 Government Gazette No 42622 of 8 August 2019)**, bound into Section T1.2

The Standard Conditions of Tender makes several references to the Tender Data. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender to which it mainly applies.

CLAUSE NUMBER		TENDER DATA
C.1.1	Actions	The Employer is City Of Tshwane Metropolitan Municipality
C.1.2	Tender Documents	<p>Volume 1: <u>Tender Document</u></p> <p>THE TENDER</p> <p>Part T1: Tendering Procedures</p> <p>T1.1 – Tender data</p> <p>T1.2 – Standard Conditions of Tender</p> <p>Part T2: Returnable documents</p> <p>T2.1 – List of returnable documents</p> <p>T2.2 – Returnable schedules</p> <p>THE CONTRACT</p> <p>Part C1: Agreements and contract data</p> <p>C1.1 – Form of offer and acceptance</p> <p>C1.2 – Contract data</p> <p>Part C3: Scope of work</p> <p>C3 – Scope of work</p> <p>Part C4: Additional information</p> <p>C4 – Additional information</p>
C.1.3	Interpretation	<u>Add</u> the following new clause:
C.1.3.4		<i>The tender documents have been drafted in English. The contract arising from the invitation to tender shall be interpreted and construed in English</i>
C.1.4	Communication and Employer's Agent	<p>Agent: Steven Macheve</p> <p>Address: Postal address PO BOX 1409 Pretoria 0001</p> <p>Physical address Capitol Towers North 225 Madiba Street Pretoria</p> <p>Tel: 012 358 9247</p> <p>E-Mail: stevenma@tshwane.gov.za</p>
C.2.1	Eligibility	<p>Only those Tenders who have in the full time employ a person satisfying the following criteria:</p> <p>i) <i>are registered as a professional civil engineer in terms of the Engineering Profession Act, 2000 (Act 46 of 2000)</i></p> <p>The tender will be evaluated in 4 stages for the Lead Consultant and 3 stages for the Assessment Consultant namely:</p>

CLAUSE NUMBER	TENDER DATA
	<p>Stage 1: Administrative Compliance All the proposals will also be evaluated against the administrative responsiveness requirements as set out in the list of returnable documents</p> <p>Stage 2: Mandatory Requirements (Lead & Assessment Consultant) (failure to comply with this requirement will result in disqualification) Company Experience, Organogram, Staffing, Bank Rating</p> <p>Stage 3: Virtual or physical presentation of electronic cloud-based roads and stormwater, and related infrastructure asset management system (Lead Consultant)</p> <p>Stage 4: Price and preference points claimed in terms of B-BBEE status (Lead & Assessment Consultant)</p>
C.2.2 Cost of Tendering	The employer will not compensate the tenderer for any costs incurred in attending interviews or making any submissions in the office of the employer.
C.2.5 Reference Documents	<p>Add the following:</p> <p>Unless specified otherwise in this document, the following standards and conditions of contract will be applicable under this Contract:</p> <ul style="list-style-type: none"> The document <i>“Standard Specifications for Municipal Civil Engineering Works”, Third Edition, 2005</i> issued by the Divisional Head: Roads and Stormwater of the City of Tshwane. <p>This document is obtainable free of charge on the website www.tshwane.gov.za.</p> <ul style="list-style-type: none"> The latest print version as current at 30 days before close of tenders of the document <i>“NEC3: Professional Services Contracts, April 2013”</i> including corrections thereto as current at 30 days before close of tenders. <p>The document may be purchased in hard copy from the <i>South African Institution of Civil Engineering</i> or may be purchased online as an electronic reference document in PDF format by following the relevant links on www.saice.org.za. The corrections may be downloaded from the SAICE website www.saice.org.za.</p>
C.2.7 Clarification meeting	<p>The arrangements for a compulsory clarification meeting are as stated in the tender notice and invitation to tender</p> <p>Confirmation of attendance will be recorded on site in the attendance register to be signed by all tenderers. Addenda will be issued to and tenders received from those tendering entities appearing on the attendance register.</p> <p>Tender documents will be made available at the clarification meeting.</p>
C.2.8 Seek clarification	<p>Replace the clause with the following:</p> <p><i>Request clarification of the tender documents, if necessary, by notifying the employer at least 2 (two) working days before the closing time stated in the tender data.</i></p>

CLAUSE NUMBER	TENDER DATA
C.2.12 Alternative offers	Alternative tender offers will <u>not</u> be considered.
C.2.13 Submitting a tender offer	<ul style="list-style-type: none"> • The tender offer <u>shall be completed in black ink pen</u> • Any entry made by the tenderer in the document which the tenderer desires to change, <u>shall not be erased or painted out</u>. A line shall be drawn through the incorrect entry and the correct entry shall be written above in <u>non-erasable black ink pen</u> and the <u>full signature</u> of the tenderer shall be placed next to the correction.
C.2.13.2	<p><u>Replace</u> the contents of the clause with the following:</p> <p><i>Return all volumes of the tender document to the Employer after completion of the relevant sections of each volume in their entirety, either electronically (if they were issued in electronic format) or by writing in black ink.</i></p> <p><i>All volumes are to be left intact in original format and no pages shall be removed or re-arranged</i></p>
C.2.13.3	<p>Parts of each tender offer communicated on paper shall be submitted as <u>an original, plus a scanned copy in PDF format on a memory stick.</u></p> <p><u>In addition to the hard copy submission, each tenderer is required to submit a scanned copy of the fully completed and signed tender submission document on a memory stick adequately identifiable as belonging to the tenderer.</u></p>
C.2.13.4	<p><u>Add</u> the following to the clause</p> <p><i>Only authorised signatories may sign the original and all copies of the tender offer where required.</i></p> <p><i>In the case of a <u>ONE-PERSON CONCERN</u> submitting a tender, this shall be clearly stated.</i></p> <p><i>In the case of a <u>COMPANY</u> submitting a tender, include a copy of a <u>resolution by its board of directors</u> authorising a director or other official of the company to sign the documents on behalf of the company.</i></p> <p><i>In the case of a <u>CLOSE CORPORATION</u> submitting a tender, include a copy of a <u>resolution by its members</u> authorising a member or other official of the corporation to sign the documents on each member's behalf.</i></p> <p><i>In the case of a <u>PARTNERSHIP</u> submitting a tender, <u>all the partners</u> shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case <u>proof of such authorisation</u> shall be included in the Tender.</i></p> <p><i>In the case of a <u>JOINT VENTURE/CONSORTIUM</u> submitting a tender, include <u>a resolution of each company</u> of the joint venture together with a <u>resolution by its members</u> authorising a member of the joint venture to sign the documents on behalf of the joint venture.</i></p> <p><u>Accept that failure to submit proof of authorisation to sign the tender shall result in the tender offer being regarded as non-responsive.</u></p>

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CLAUSE NUMBER	TENDER DATA
C.2.13.5	<p>The identification details are:</p> <p>Tender Reference: ROC 32-2022/23</p> <p>Tender Description Tender for professional Civil Engineering services for providing and operating of a GIS linked road and stormwater as well as other related infrastructure management systems within the City of Tshwane on cloud-based system as and when required on tendered rates and available budget: 3-Year period</p>
C.2.13.9	Telephonic, telegraphic, telex, facsimile or e-mailed offers will <u>not</u> be accepted
C.2.13.10	<p><u>Add</u> the following sub- clause C.2.13.10:</p> <p><i>Accept that all conditions, which are printed or written upon any stationery used by the Tenderer for the purpose of or in connection with the submission of a tender offer for this Contract, which are in conflict with the conditions laid down in this document shall be waived, renounced and abandoned.</i></p>
C.2.14 Information and data to be completed in all respects	<p><u>Add</u> the following to the clause:</p> <p><i>The Tenderer is required to enter information in the following sections of the document:</i></p> <p>Section T2.2 : Returnable Schedules Section C1.1 : Form of Offer and Acceptance Section C1.2 : Contract Data (Part 2) Section C2.2 : Pricing Schedule</p> <p><i>The above sections shall be signed by the Tenderer (and witnesses where required). Individual pages should only be initialled by the successful Tenderer and by the witnesses after acceptance by the Employer of the Tender Offer.</i></p> <p><i>The Tenderer shall complete and sign the Form of Offer prior to the submission of a Tender Offer.</i></p> <p><i>The Schedule of Deviations (if applicable) shall be signed by the successful Tenderer after acceptance by the Employer of the Tender Offer.</i></p> <p><i>Accept that failure on the part of the Tenderer to submit any one of the Returnable Documents listed in Part T2 – Returnable Documents within the period stipulated, shall be just cause for the Employer to consider the tender offer as being regarded as non-responsive.</i></p> <p><i>Accept that the Employer shall in the evaluation of tender offers take due account of the Tenderer’s past performance in the execution of similar engineering works of comparable magnitude, and the degree to which he possesses the necessary technical, financial and other resources to enable him to complete the Works</i></p>

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CLAUSE NUMBER	TENDER DATA
	<i>successfully within the contract period. Satisfy the Employer and the Engineer as to his ability to perform and complete the Works timeously, safely and with satisfactory quality, and furnish details in Part T2 – Returnable Documents.</i>
C.2.15 Closing time	<p>The closing date and time is:</p> <p>Closing Time: 10:00</p> <p>Closing Date: 01 December 2022</p> <p>Each tender shall be enclosed in a sealed envelope, bearing the correct identification details and shall be placed in the tender box located at:</p> <p>TENDER BOX (ENTRANCE OF TSHWANE HOUSE) TSHWANE HOUSE 320 MADIBA STREET PRETORIA 0001 This address is 24 hours available for delivery of tender offers.</p>
C.2.16 Tender offer validity C.2.16.5	<p>The tender offer validity period is 90 days.</p> <p>Add the following new clause</p> <p><i>If the tender validity period expires on a Saturday, Sunday or public holiday, the tender offer shall remain valid and open for acceptance until closure of business on the following working day.</i></p>
C.2.18 Provide other material	<p>The tenderer shall, when requested by the employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.</p>
C.2.19 Inspections, tests and analysis	<p>Add the following at the end of the clause:</p> <p><i>....or upon written request.</i></p>
C.2.20 Submit securities, bonds, policies, etc.	<p>The tenderer is required to submit with his tender proof of his Professional Indemnity Insurance.</p>
C.2.23 Certificates	<p>Refer to part T2 of this procurement document for a list of the documents that are to be returned with the tender.</p>
C.2.24 Canvassing and obtaining of additional information by tenderers	<p>Add the following new clause</p> <p><i>The Tenderer shall not make any attempt either directly or indirectly to canvass any of the Employer's officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon.</i></p> <p><i>The Tenderer shall not make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders.</i></p>
C.2.25 Prohibitions on awards to persons	<p>Add the following new clause</p> <p><i>The Employer is prohibited to award a tender to a person -</i></p> <p><i>a) who is in the service of the state; or</i></p>

CLAUSE NUMBER	TENDER DATA
<i>in service of the state</i>	<p>b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or</p> <p>c) a person who is an advisor or consultant contracted with the municipality or municipal entity.</p> <p><i>In the service of the state means to be -</i></p> <p>a) a member of:-</p> <ul style="list-style-type: none"> • any municipal council; • any provincial legislature; or • the National Assembly or the National Council of Provinces; <p>b) a member of the board of directors of any municipal entity;</p> <p>c) an official of any municipality or municipal entity;</p> <p>d) an employee of any national or provincial department;</p> <p>e) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);</p> <p>f) a member of the accounting authority of any national or provincial public entity; or</p> <p>g) an employee of Parliament or a provincial legislature.</p> <p>In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 of this procurement document must be completed.</p>
C.2.26 Awards to close family members of persons in the service of the state	<p><u>Add</u> the following new clause</p> <p>Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R2000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause F2.25), or has been in the service of the state in the previous twelve months, including -</p> <p>a) the name of that person;</p> <p>b) the capacity in which that person is in the service of the state; and</p> <p>c) the amount of the award.</p> <p>In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 of this procurement document must be completed.</p>
C.2.27 Vendor registration	<p><u>Add</u> the following new clause</p> <p>The contractor will required registering as a supplier/ service provider on the City of Tshwane's vendor register before any payment can be done.</p> <p>If the tenderer is already registered as a vendor, it is required to record the vendor number in space provided on the cover page of this Tender document.</p> <p>Vendor registration documents are available from the Procurement Advice Centre or can be downloaded from http://www.tshwane.gov.za/procurement.cfm</p> <p>All parties of a joint venture or consortium submitting a tender shall comply with the requirements of this clause.</p>
C.2.28 Tax	<p><u>Add</u> the following new clause</p>

CLAUSE NUMBER	TENDER DATA
	<p>National Treasury SCM Instruction no. 7 of 2017/18 clause 4 application during SCM Processes state that:</p> <p><i>The designated official(s) must verify the tenderer's tax compliance status prior to the finalisation of the award of the tender or price quotation.</i></p> <p><i>Where the recommended tenderer is not tax compliant, the tenderer should be notified of their non-compliant status and the tenderer must be requested to submit to the municipality or municipal entity, within 7 working days, written proof from South African Revenue Services of their tax compliance status or proof from SARS that they have made an arrangement to meet their outstanding tax obligations. The proof of tax compliance status submitted by the tenderer to the municipality or municipal entity must be verified via the Central Supplier Database or eFiling</i></p> <p><i>Accept that the tenderer will be rejected if such tenderer fails to provide proof of tax compliance status in terms of clause 4.2 of National Treasury SCM Instruction no. 7 of 2017/18</i></p>
<p>C.3.1 Respond to requests from the tenderer</p> <p>C.3.1.1</p>	<p>The employer will respond to requests for clarification up to 2 (two) working days before the tender closing time.</p>
<p>C.3.4 Opening of tender submissions</p>	<p>Upon request tenders will be opened immediately after the closing time for tenders. The tender submission register will be made public on the City's website www.tshwane.gov.za</p>
<p>C.3.11 Evaluation of tender offers</p>	<p>The tender will be evaluated in 4 stages for the Lead Consultant and 3 stages for the Assessment Consultant namely:</p> <p>Stage 1: Administrative Compliance All the proposals will also be evaluated against the administrative responsiveness requirements as set out in the list of returnable documents</p> <p>Stage 2: Mandatory Requirements (Lead & Assessment Consultant) (failure to comply with this requirement will result in disqualification) Company Experience, Organogram, Staffing, Bank Rating</p> <p>Stage 3: Virtual or physical Presentation Virtual or physical presentation of electronic cloud-based roads and stormwater, and related infrastructure asset management system (Lead Consultant)</p> <p>Stage 4: Preferential Point System (Lead & Assessment Consultant) The preferential points to be used will be the 80/20 points system in terms of the Preference Procurement Policy Framework Act, 2000 (Act 5 of 2000) Regulations 2017.</p>

CLAUSE NUMBER	TENDER DATA				
C.3.11.1 General	<ul style="list-style-type: none"> 80 points for price 20 points for B-BBEE status (service provider to submit the certified copy of the B-BBEE level rating certificate). <p>Method 1 will be used to evaluate all responsive tender offers in terms of Clause C.3.11.2 of the Standard Conditions of Tender</p>				
C.3.11.2 Method 1: Financial offer and preference	<p>Add the following new clause:</p> <p><i>The procedure for the evaluation of responsive tender is Method 1.</i></p> <p><i>The financial offer will be scored using Formula 2 (Option 1) in Table C.1 where the value of W1 is:</i></p> <ol style="list-style-type: none"> 90 where the financial value of all responsive tender received have a value in excess of R50 million (all applicable taxes included). 80 where the financial value of all responsive tender have a value that equals or less than R50 million (all applicable taxes included). <p><i>Up to 100 minus W1 tender evaluated points will be awarded to tenderers who completed the preferencing schedule and who are found to be eligible for the preference claimed.</i></p>				
C.3.11.3 80/20 Preference Point System	<p>Add the following new clause:</p> <p>The 80/20 preference point system for acquisition of services, works or goods up to Rand value of R50 million:</p> <p>(a) The following formula must be used to calculate the points for price in respect of tenders (including price quotation) with a Rand value equal to, or above R 30 000 and up to Rand value of R50 000 000 (all applicable taxes included):</p> $(i) \quad P_s = 80 \times \left[1 - \left(\frac{P_t - P_{min}}{P_{min}} \right) \right]$ <p>Where</p> <p>P_s = Points scored for comparative price of tender or offer under consideration;</p> <p>P_t = Comparative price of tender of offer under consideration; and</p> <p>P_{min} = Comparative price of lowest acceptable tender or offer.</p> <p>(ii) An Employer of state may apply the formula in paragraph (i) for price quotations with a value less than R 30 000, if and when appropriate.</p> <p>(b) Subject to subparagraph (c), points must be awarded to a tender for attaining the B-BBEE status level of contributor in accordance with the table below:</p> <table border="1"> <thead> <tr> <th>B-BBEE Status Level of Contributor</th><th>Number of Points</th></tr> </thead> <tbody> <tr> <td>1</td><td>20</td></tr> </tbody> </table>	B-BBEE Status Level of Contributor	Number of Points	1	20
B-BBEE Status Level of Contributor	Number of Points				
1	20				

CLAUSE NUMBER	TENDER DATA																
	<table border="1" data-bbox="608 344 1241 734"> <tr><td>2</td><td>18</td></tr> <tr><td>3</td><td>14</td></tr> <tr><td>4</td><td>12</td></tr> <tr><td>5</td><td>8</td></tr> <tr><td>6</td><td>6</td></tr> <tr><td>7</td><td>4</td></tr> <tr><td>8</td><td>2</td></tr> <tr><td>Non-compliant Contributor</td><td>0</td></tr> </table> <p>(c) A maximum of 20 points may be allocated in accordance with subparagraph (b)</p> <p>(d) The points scored by tender in respect of B-BBEE contribution contemplated in subparagraph (b) must be added to the points scored for price a calculated in accordance with subparagraph (a).</p> <p>(e) The contract must be awarded to the tender who scores the highest total number of points.</p>	2	18	3	14	4	12	5	8	6	6	7	4	8	2	Non-compliant Contributor	0
2	18																
3	14																
4	12																
5	8																
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8	2																
Non-compliant Contributor	0																
C.3.11.4 90/10 Preference Point System	<p>Add the following new clause:</p> <p>The 90/10 preference point system for acquisition of services, works or goods above a Rand value of R50 million:</p> <p>(a) The following formula must be used to calculate the points for price in respect of tenders (including price quotation) with a Rand value above R50 000 000 (all applicable taxes included):</p> $(i) \quad P_s = 90 \times \left[1 - \left(\frac{P_t - P_{min}}{P_{min}} \right) \right]$ <p>Where</p> <p>P_s = Points scored for comparative price of tender or offer under consideration;</p> <p>P_t = Comparative price of tender of offer under consideration; and</p> <p>P_{min} = Comparative price of lowest acceptable tender or offer.</p> <p>(ii) An Employer of state may apply the formula in paragraph (i) for price quotations with a value less than R 30 000, if and when appropriate.</p> <p>(b) Subject to subparagraph (c), points must be awarded to a tender for attaining the B-BBEE status level of contributor in accordance with the table below:</p> <table border="1" data-bbox="608 2007 1241 2087"> <tr> <th>B-BBEE Status Level of Contributor</th><th>Number of Points</th></tr> </table>	B-BBEE Status Level of Contributor	Number of Points														
B-BBEE Status Level of Contributor	Number of Points																

CLAUSE NUMBER	TENDER DATA																		
	<table><tr><td>1</td><td>10</td></tr><tr><td>2</td><td>9</td></tr><tr><td>3</td><td>6</td></tr><tr><td>4</td><td>5</td></tr><tr><td>5</td><td>4</td></tr><tr><td>6</td><td>3</td></tr><tr><td>7</td><td>2</td></tr><tr><td>8</td><td>1</td></tr><tr><td>Non-compliant Contributor</td><td>0</td></tr></table> <p>(c) A maximum of 10 points may be allocated in accordance with subparagraph (b)</p> <p>(d) The points scored by tender in respect of B-BBEE contribution contemplated in subparagraph (b) must be added to the points scored for price a calculated in accordance with subparagraph (a).</p> <p>(e) The contract must be awarded to the tender who scores the highest total number of points.</p>	1	10	2	9	3	6	4	5	5	4	6	3	7	2	8	1	Non-compliant Contributor	0
1	10																		
2	9																		
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4	5																		
5	4																		
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7	2																		
8	1																		
Non-compliant Contributor	0																		
C.3.11.5 Scoring financial offers	<p>Add the following New Clause:</p> <p>Score the financial offers of remaining responsive tender offers using the following formula:</p> $N_{FO} = W_1 \times A$ <p>Where N_{FO} is the number of tender evaluation points awarded for the financial offer.</p> <p> W_1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the tender data.</p> <p> A is a number calculated using the formula and option described in Table F.1 as stated in the tender data.</p> <p>Table C.1: Formulae for calculating the value of A</p> <table><tr><th>Formula</th><th>Comparison aimed at achieving</th><th>Option 1^a</th><th>Option 2^a</th></tr><tr><td>1</td><td>Highest price or discount</td><td>$A = \left(1 + \frac{(P - P_m)}{P_m} \right)$</td><td>$A = P / P_m$</td></tr><tr><td>2</td><td>Lowest price or percentage commission / fee</td><td>$A = \left(1 - \frac{(P - P_m)}{P_m} \right)$</td><td>$A = P_m / P$</td></tr></table>	Formula	Comparison aimed at achieving	Option 1 ^a	Option 2 ^a	1	Highest price or discount	$A = \left(1 + \frac{(P - P_m)}{P_m} \right)$	$A = P / P_m$	2	Lowest price or percentage commission / fee	$A = \left(1 - \frac{(P - P_m)}{P_m} \right)$	$A = P_m / P$						
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CLAUSE NUMBER	TENDER DATA
	<div style="border: 1px solid black; padding: 10px;"> <p>a P_m is the comparative offer of the most favourable comparative offer.</p> <p>P is the comparative offer of the tender offer under consideration.</p> </div>
C.3.13 Acceptance of Tender Offer	<p>Tender offers will only be accepted if:</p> <ul style="list-style-type: none"> a.) the tenderer complies with the eligibility criteria stated in clause C.2.1 b.) the tenderer is able to provide proof of tax compliance status in terms of clause 4.2 of National Treasury SCM Instruction no. 7 of 2017/18; c.) the tenderer is not in arrears for more than 3 months with municipal rates and taxes and municipal service charges; d.) 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; e.) the tenderer has not: <ul style="list-style-type: none"> i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect. f.) the tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the contract; g.) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer;
C.3.17 Copies of Contract	<p><u>One</u> signed copy of contract shall be provided by the Employer to the successful Tenderer.</p>

T1.3 STANDARD CONDITIONS OF TENDER

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TENDER REFERENCE: ROC 32-2022/23

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM.

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C.1 General

C.1.1 Actions

C.1.1.1 The Employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

C.1.1.2 The Employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the Employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict, and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note: 1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*

2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

C.1.1.3 The Employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

The documents issued by the Employer for the purpose of a tender offer are listed in the tender data.

C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation which:

- i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
- ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
- iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

- c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the Employer or his staff or agents in the tender process;
- d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the Employer, including collusive practices intended to establish prices at artificial levels;

C.1.4 Communication and Employer's agent

Each communication between the Employer and a tenderer shall be to or from the Employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The Employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the Employer's agent are stated in the tender data.

C.1.5 Cancellation and re-invitation of tenders

C.1.5.1 An organ of state may, prior to the award of the tender, cancel the tender if-

- (a) due to changed circumstances, there is no longer a need for the services, works or goods requested; or
- (b) funds are no longer available to cover the total envisaged expenditure;
- (c) no acceptable tenders are received; or
- (d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel the tender must be published in the same manner in which the original tender invitation was advertised.

C.1.5.3 An Employer may only with the prior approval of the relevant treasury cancel a tender invitation for a second time.

C.1.6 Procurement procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the Employer shall announce only the names of the tenderers who make a submission. The requirements of C.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the Employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the Employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The Employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2 Option 2

C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The Employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

C.1.6.3.2.2 The Employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with Employer.

C.2.1.2 Notify the Employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the Employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the Employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, the Employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.

C.2.2.2 The cost of the tender documents charged by the Employer shall be limited to the actual cost incurred by the Employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

Check the tender documents on receipt for completeness and notify the Employer of any discrepancy or omission.

C.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the Employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

C.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the Employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the Employer at least five (5) working days before the closing time stated in the tender data.

C.2.9 Insurance

Be aware that the extent of insurance to be provided by the Employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10 Pricing the tender offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

C.2.10.2 Show VAT payable by the Employer separately as an addition to the tendered total of the prices.

C.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

C.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

C.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the Employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

C.2.12 Alternative tender offers

C.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

C.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the Employer.

C.2.12.3 An alternative tender offer may only be considered in the event that the main tender is the winning tender.

C.2.13 Submitting a tender offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

C.2.13.2 Return all returnable documents to the Employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

C.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the Employer.

C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The Employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the Employer shall hold liable for the purpose of the tender offer.

C.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the Employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the Employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the Employer's address and identification details as stated in the tender data.

C.2.13.8 Accept that the Employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the Employer, unless stated otherwise in the tender data.

C.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the Employer as non-responsive.

C.2.15 Closing time

C.2.15.1 Ensure that the Employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

C.2.15.2 Accept that, if the Employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender offer validity

C.2.16.1 Hold the tender offer(s) valid for acceptance by the Employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

C.2.16.2 If requested by the Employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the Employer may only be withdrawn or substituted by giving the Employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the Employer evaluating tender, the Contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the Employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: *Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

C.2.18 Provide other material

C.2.18.1 Provide, on request by the Employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the Employer for the purpose of a full and fair risk assessment.

Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the Employer's request, the Employer may regard the tender offer as non-responsive.

C.2.18.2 Dispose of samples of materials provided for evaluation by the Employer, where required.

C.2.19 Inspections, test and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

C.2.20 Submit securities, bonds and policies

If requested, submit for the Employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

C.2.21 Check final draft

Check the final draft of the contract provided by the Employer within the time available for the Employer to issue the contract.

C.2.22 Return of other tender documents

If so instructed by the Employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

C.2.23 Certificates

Include in the tender submission or provide the Employer with any certificates as stated in the tender data.

C.3 The Employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the Tender Data respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the

closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4 Opening of tender submissions

C.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices.

C.3.4.3 Make available the record outlined in C.3.4.2 to all interested persons upon request.

C.3.5 Two-envelope system

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality

C.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

C.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

C.3.8 Test for responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and

c) is responsive to the other requirements of the tender documents.

C.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

C.3.9 Arithmetical errors, omissions and discrepancies

C.3.9.1 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 in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate;
- b) omissions made in completing the pricing schedule or bills of quantities; or
- c) arithmetic errors in:
 - i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
 - ii) the summation of the prices.

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or decline thereby withdrawing their tender offer.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

- a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- c) 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 govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.

C.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the Employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require Employers to conduct the process of offer and acceptance in terms of a set of standard procedures

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12 Insurance provided by the Employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the Employer to provide.

C.3.13 Acceptance of tender offer

Accept the tender offer, if in the opinion of the Employer, it does not present any unacceptable commercial risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the Employer's procurement,
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
- c) has the legal capacity to enter into the contract,
- d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
- e) complies with the legal requirements, if any, stated in the tender data, and
- f) is able, in the opinion of the Employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the Employer as part of the tender documents to take account of:

- a) addenda issued during the tender period,
- b) inclusion of some of the returnable documents, and
- c) other revisions agreed between the Employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

C.3.16 Registration of the award

An Employer must, within twenty-one (21) working days from the date on which a service provider offer to perform a works contract is accepted in writing by the employer, register and publish the award on the CIDB Register of Projects.

- C.3.16.2** After the successful tenderer has been notified of the Employer's acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

C.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the tender data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

C.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

TENDER REFERENCE: ROC 32-2022/23

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM.

PART T2: RETURNABLE DOCUMENTS

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T2.1 LIST OF RETURNABLE DOCUMENTS

RD.A RETURNABLE DOCUMENTS FOR TENDER EVALUATION PURPOSES

Note: *Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration*

Document Name	Reference	Confirmation of Document Included (Tenders may use this column to confirm documents have been completed and included in the tender)
Form of offer and acceptance	Section C1.1	
MBD 4: Declaration of interest in tender of persons in service of state	Form RD.A.1	
MBD 8: Declaration of tenderer's past supply chain management practices	Form RD.A.2	
MBD 2: TAX CLEARANCE CERTIFICATE REQUIREMENTS	Form RD.A.3	

RD.B RETURNABLE DOCUMENTS REQUIRED FOR PREFERENTIAL PROCUREMENT EVALUATION PURPOSES

Note: *Failure to submit the applicable documents will result in the tender offer being awarded 0 (zero) preference points*

Document Name	Reference	Confirmation of Document Included (Tenders may use this column to confirm documents have been completed and included in the tender)
Valid B-BBEE Status Level of Contributor Certificate		
MBD 6.1: Preference points claim form in terms of the Preferential Procurement Regulations, 2017	Form RD.B.1	

RD.C ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: *Failure to submit the applicable document will result in the Tenderer having to submit same upon request within 7 days and if not complied with, will result to the tender offer being disqualified from further consideration [See also clause 2.18 of the Standard Conditions of Tender]*

Document Name	Reference	Confirmation of Document Included (Tenders may use this column to confirm documents have been completed and included in the tender)
MBD 9: Certificate of independent tender determination	RD.C.1	

TENDER REFERENCE: ROC 32-2022/23

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM.

Document Name	Reference	Confirmation of Document Included (Tenders may use this column to confirm documents have been completed and included in the tender)
Record of services provided to organs of state	RD.C.2	
Status of concern submitting tender	RD.C.3	
Classification of business	RD.C.4	
MBD 5: Declaration for procurement above R10 million (all applicable taxes included)	RD.C.5	
Certificate of authority of signatory	RD.C.6	
Certificate of authority of signatory for joint ventures and consortia	RD.C.7	
Proof of registration in terms of the Engineering Professions Act, 2000	RD.C.8	
Proof of professional indemnity insurance	RD.C.10	
Virtual or physical presentation of electronic Cloud Based Management System (after closing of tender)	RD.C.11	N/A

RD.D MANDATORY REQUIREMENTS

Note: *Failure to submit any of the mandatory required documents will result in automatic disqualification*

Document Name	Reference	Confirmation of Document Included (Tenders may use this column to confirm documents have been completed and included in the tender)
Mandatory Requirements	RD.D.1	

TENDER REFERENCE: ROC 32-2022/23

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM.

RD.E OTHER DOCUMENTS THAT WILL FORM PART OF THE CONTRACT

Note: *Failure to submit or fully complete the applicable documents will result in the tender offer being disqualified from further consideration*

Document Name	Reference	Confirmation of Document Included (Tenders may use this column to confirm documents have been completed and included in the tender)
Data provided by the service provider	Section C1.2	
Record of addenda to tender documents	RD.E.1	

T2.2 RETURNABLE SCHEDULES

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FORM RD.A.1 MBD 4 DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state¹.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.
3. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**
 - 3.1 Full Name of bidder or his or her representative:
 - 3.2 Identity Number:
 - 3.3 Position occupied in the Company (director, trustee, shareholder²)
 - 3.4 Company Registration Number:
 - 3.5 Tax Reference Number:
 - 3.6 VAT Registration Number:
 - 3.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.
 - 3.8 Are you presently in the service of the state? **YES / NO**
 - 3.8.1 If yes, furnish particulars.
.....

¹ MSCM Regulations: "in the service of the state" means to be –

- (a) a member of –
 - (i) any municipal council;
 - (ii) any provincial legislature; or
 - (iii) the national Assembly or the national Council of provinces;
- (b) a member of the board of directors of any municipal entity;
- (c) an official of any municipality or municipal entity;
- (d) an employee of 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);
- (e) a member of the accounting authority of any national or provincial public entity; or
- (f) an employee of Parliament or a provincial legislature.

² Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

TENDER REFERENCE: ROC 32-2022/23

TENDER FOR PROFESSIONAL CIVIL ENGINEERING SERVICES FOR PROVIDING AND OPERATING OF A GIS LINKED ROAD AND STORMWATER AS WELL AS OTHER RELATED INFRASTRUCTURE MANAGEMENT SYSTEMS WITHIN THE CITY OF TSHWANE ON CLOUD BASED SYSTEM AS AND WHEN REQUIRED ON TENDERED RATES AND AVAILABLE BUDGET: 3-YEAR TERM.

3.9 Have you been in the service of the state for the past twelve months? **YES/NO**

3.9.1 If yes, furnish particulars.

.....

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.10.1 If yes, furnish particulars.

.....

3.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.11.1 If yes, furnish particulars.

.....

3.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.12.1 If yes, furnish particulars.

.....

3.13 Are any spouse, child or parent of the company's directors trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.13.1 If yes, furnish particulars.

.....

3.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract. **YES / NO**

3.14.1 If yes, furnish particulars:

.....

4. Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	State Employee Number

.....

Signature

.....

Date

.....

Capacity

.....

Name of Bidder

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.A.2 MBD 8: DECLARATION OF TENDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal Bidding Document (MBD) must form part of all tenders invited.
2. It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
3. The tender of any tenderer may be rejected if that tenderer, or any of it's directors have:
 - a. abused the municipality's/municipal entity's supply management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. wilfully neglected, reneged on or failed to comply with any government, Municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004).
4. In order to give effect to the above, the following questionnaire must be completed and submitted with the tender:

Item	Question	Response	
4.1	Is the tenderer, any of it's directors listed on the National Treasurer's database as a company or persons prohibited from doing business with the public sector? (Companies for persons who are listed on this database were informed in writing of this restriction by the National Treasury after the audi alteram partem rule was applied)	YES <input type="checkbox"/>	NO <input type="checkbox"/>
	If so, furnish particulars:		
4.2	Is the tenderer or any of it's directors listed on the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004)? (To access this register enter the National Treasury's website, www.treasury.gov.za , click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number 012-326-5445)	YES <input type="checkbox"/>	NO <input type="checkbox"/>
	If so, furnish particulars:		
4.3	Was the tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	YES <input type="checkbox"/>	NO <input type="checkbox"/>
	If so, furnish particulars:		

Item	Question	Response	
4.4	Does the tenderer or any of its directors owe any municipal rates and taxes or municipal charges to the municipality/municipal entity, or to any other municipality/municipal entity, that is in arrears for more than three months?	YES <input type="checkbox"/>	NO <input type="checkbox"/>
	If so, furnish particulars:		
4.5	Was any contract between the tenderer and the municipality/municipal entity or any other 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"/>
	If so, furnish particulars:		

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.A.3 MBD 2: TAX CLEARANCE CERTIFICATE REQUIREMENTS

It is a condition of tender that the taxes of the successful tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the tenderer's tax obligations.

1. In order to meet this requirement tenderers are required to complete in full the form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.
2. SARS will then furnish the tenderer with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
3. **The original Tax Clearance Certificate must be submitted together with the tender. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the tender. Certified copies of the Tax Clearance Certificate will not be acceptable.**
4. In tenders where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.
5. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.
6. Applications for the Tax Clearance Certificates may also be made via e-Filing. In order to use this provision, taxpayers will need to register with SARS as e-Filers through the website www.sars.gov.za

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.B.1 MBD 6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2011

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution.

NB BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2011

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all tenders:

- The 80/20 system for requirements with a Rand value of up to R50 000 000.00 (**all applicable taxes included**); and
- The 90/10 system for requirements with a Rand value above R50 000 000.00 (**all applicable taxes included**).

1.2 The value of this tender is estimated not to *exceed* R50 000 000.00 and therefore the **80/20** system shall be applicable.

1.3 Preference points for this tender shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contribution

1.3.1 The points for this tender are allocated as follows:

	POINTS
1.3.1.1 PRICE	80
1.3.1.2 B-BBEE STATUS LEVEL OF CONTRIBUTION	20
Total points for Price, B-BBEE must not exceed	100

1.4 Failure on the part of a tenderer to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the tender, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5 Blank or incomplete particulars or insufficient documentary proof thereof, or failure to sign the declaration, will be construed to mean that the tenderer is not claiming preference points, in which case no points will be awarded for HDI.

2. DEFINITIONS

2.1 **all applicable taxes** include value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

2.2 **B-BBEE** means broad-based black economic empowerment as defined in Section 1 of the Broad-Based Black Economic Empowerment Act.

2.3 **B-BBEE Status Level of Contributor** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of Section 9(1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003).

- 2.4 **Broad-Based Black Economic Empowerment Act** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003).
- 2.5 **comparative price** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration.
- 2.6 **consortium or joint venture** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skills and knowledge in an activity for the execution of a contract.
- 2.7 **contract** means the agreement that results from the acceptance of a tender by an organ of state.
- 2.8 **EME** means any enterprise with an annual total revenue of R5 million or less.
- 2.9 **firm price** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract.
- 2.10 **functionality** means the measurement according to predetermined norms, as set out in the tender documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder.
- 2.11 **non-firm prices** mean all prices other than **firm** prices.
- 2.12 **person** includes a juristic person.
- 2.13 **rand value** means that total estimated value of a contract in South African currency, calculated at the time of tender invitations and includes all applicable taxes and excise duties.
- 2.14 **sub-contract** means the primary contractor's assigning or leasing or making out work to or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.
- 2.15 **tender** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods, works or services works or goods, through price quotations, advertised competitive bidding processes or proposals.
- 2.16 **total revenue** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the Government Gazette on 9 February 2007.
- 2.17 **trust** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person.
- 2.18 **trustee** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
- 3. ADJUDICATION USING A POINT SYSTEM**
- 3.1 The tenderer obtaining the highest number of total points will be awarded the contract.
- 3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts.

- 3.3 Points scored will be rounded off to 2 (two) decimal places.
- 3.4 In the event that two or more tenders have scored equal total points, the successful tender must be the one scoring the highest number of preference points for B-BBEE.
- 3.5 However, when functionality is part of the evaluation process and two or more tenders have scored equal points including equal preference points for B-BBEE, the successful tender must be the one scoring the highest score for functionality.
- 3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

THE 80/20 OR 90/10 PREFERENCE POINT SYSTEM

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

80/20

90/20

$$P_s = 80 \left(1 - \frac{P_T - P_{MIN}}{P_{MIN}} \right)$$

$$P_s = 90 \left(1 - \frac{P_T - P_{MIN}}{P_{MIN}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_T = Rand value of tender under consideration

P_{MIN} = Rand value of lowest acceptable tender

5. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTION

- 5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	8	16
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

- 5.2 Tenderers who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.
- 5.3 Tenderers other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.
- 5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.
- 5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate tender.
- 5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.
- 5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the tender documents that such a tenderer intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a tenderer qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.
- 5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. TENDER DECLARATION

Tenderers who claim points in respect B-BBEE Status Level of Contribution must complete the following

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

- 7.1 B-BBEE Status of Contribution: = (maximum of 10 or 20 points)

(Points claimed in respect of paragraph &.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA.

8. SUB-CONTRACTING

- 8.1 Will any portion of the contract be sub-contracted?
(delete which is not applicable)

YES	NO
-----	----

- 8.1.1 If YES, indicate:
-

Name of subcontractor	% to be subcontracted	B-BBEE status level of sub-contractor	Is the sub-contractor an EME (delete which is not applicable)	
			YES	NO
			YES	NO
			YES	NO
			YES	NO

9. DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of FIRM: _____

9.2 VAT Registration number: _____

9.3 Company registration number: _____

9.4 Type of firm: _____

Partnership

One person business/sole trade

Close corporation

Company

(Pty) Limited

Small Medium Micro Enterprises

(Tick applicable box)

9.5 Describe principal business activities

9.6 Company classification

Manufacturer

Supplier

Professional service provider

Other service providers, e.g. transporter etc.

(Tick applicable box)

9.7 Municipal information

Municipality where business is situated: _____

Registered account number: _____

Stand number: _____

9.8 Total number of years the firm has been in business _____

9.9 I/we, the undersigned, who warrants that he/she is duly authorized to do so on behalf of the company/firm certify that points claimed, based on the B-BBEE status level of contribution, indicated in paragraph 7 of the foregoing certificate, qualifies the company/firm for the preference(s) shown and I/we acknowledge that:

- i) The information furnished is true and correct.
- ii) The preference claimed is in accordance with the General Conditions as indicated in paragraph 1 of this form.
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct.
- iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have-
 - a) disqualify the person. from the tender process;
 - b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct; and
 - c) 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.
 - d) restrict the tenderer or contractor, its shareholders and directors, or only the shareholders and directors WHO acted on a fraudulent basis, 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 have been applied; and
 - e) forward the matter for criminal prosecution.

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at _____

on this _____

day of _____

WITNESSES:

(Full name in BLOCK letters and signature)

1.

2.

FORM RD.C.1 MBD 9: CERTIFICATION OF INDEPENDENT TENDER DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all tenders¹ invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive tendering (or tender rigging)². Collusive tendering is a *per se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. Take all reasonable steps to prevent such abuse;
 - b. Reject the tender of any tenderer if that tenderer or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. Cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the tendering process or the execution of the contract.
4. This MDB will serve as a certificate of declaration that would be used by institutions to ensure that, when tenders are considered, reasonable steps are taken to prevent any form of tender-rigging.
5. In order to give effect to the above, the attached Certificate of Tender Determination must be completed and submitted with the tender.

¹ Includes price quotations, advertised competitive tenders, limited tenders and proposals.

² Tender rigging (or collusive tendering) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and/or services for purchasers who wish to acquire goods and/or services through a tender process. Tender rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying tender:

ROC 32-2022/23 Tender for Professional Civil Engineering Services for Providing and Operating of a GIS linked Road and Stormwater as well as other Infrastructure Management Systems within the City of Tshwane on cloud based system as and when required on tendered rates and available budget: 3-Year Term

in response to the invitation for the tender made by

City of Tshwane Metropolitan Municipality

do hereby make the following statement that I certify to be true and complete in every respect:

I certify, on behalf of _____ that:
(Name of tenderer)

1. I have read and understand the contents of this certificate;
2. I understand that the accompanying tender will be disqualified if this certificate is found not to be true and complete in every aspect;
3. I am authorized by the tenderer to sign this certificate, and to submit the accompanying tender, on behalf of the tenderer;
4. Each person whose signature appears on the accompanying tender has been authorized by the tenderer to determine the terms of, and to sign, the tender, on behalf of the tenderer;
5. For the purposes of this Certificate and the accompanying tender, I understand that the word "competitor" shall include any individual or organization, other than the tenderer, whether or not affiliated with the tenderer who:
 - a. has been requested to submit a tender in response to this tender invitation, based on their qualifications, abilities or experience; and
 - b. could potentially submit a tender in response to this tender invitation, based on their qualifications, abilities or experience; and
 - c. provides the same goods and services as the tenderer and/or is in the same line of business as the tenderer.
6. The tenderer has arrived at the accompanying tender independently form, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium³ will not be construed as collusive tendering.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - a. Prices;
 - b. Geographical area where product or services will be rendered (market allocation);
 - c. Methods, factors or formulas used to calculate prices;
 - d. The intention or decision to submit or not to submit, a tender;
 - e. The submission of a tender which does not meet the specifications and conditions of the tender; or
 - f. Tendering with the intention not to win the tender.

³ 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.

8. In addition, there have been no consultations, communications, agreements or arrangement with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this tender invitation relates.
9. The terms of the accompanying tender have not been, and will not be, disclosed by the tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or to the awarding of the contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders 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 form conduction 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.

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.C.2 RECORD OF SERVICES PROVIDED TO ORGANS OF STATE

Tenderers are required to complete this record in terms of the Supply Chain Management Regulations issued in terms of the Municipal Finance Management Act of 2003.

Include only those contracts where the tenderer identified in the signature block below was directly contracted by the employer. Tenderers must not include services provided in terms of a sub-contract agreement.

Where contracts were awarded in the name of a joint venture and the tenderer formed part of that joint venture, indicate in the column entitled "Title of the contract for the service" that was in joint venture and provide the name of the joint venture that contracted with the employer. In the column for the value of the contract for the service, record the value of the portion of the contract performed (or to be performed) by the tender.

Complete the record or attach the required information in the prescribed tabulation

ALL SERVICES COMMENCED OR COMPLETED TO AN ORGAN OF STATE IN THE LAST FIVE YEARS				
	Organ of state, i.e. national or provincial department, public entity, municipality or municipal entity.	Title of contract for the service	Value of contract for service incl. VAT (Rand)	Date completed (State current if not yet completed)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

(Attach additional pages if more space is required.)

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters):

Signature:

Date:

FORM RD.C.3 STATUS OF CONCERN SUBMITTING TENDER

1. General

State whether the tenderer is a company, a closed corporation, a partnership, a sole practitioner, a joint venture/consortium or a co-operative

Public Company

Private Company

Closed Corporation

Partnership

Sole Proprietary

Joint Venture / Consortium

Co-operative

(Mark the appropriate option)

2. Information to be provided

If the Tendering Entity is a:		Documentation to be submitted with the tender
1	<u>Closed Corporation</u> , incorporated under the Close Corporation Act, 1984, Act 69 of 1984	CIPRO CK1 or CK2 (Certified copies of the founding statement) and list of members
2	<u>Private Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 (Including Companies incorporated under Art 53 (b))	Certified copies of: a) CIPRO CM 1 - Certificate of Incorporation b) CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers c) Shareholders Certificates of all Members of the Company, plus a signed statement of the Company's Auditor, certifying each Member's ownership/shareholding percentage relative to the total.
3	<u>Private Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 in which any, or all, <u>shares are held by another</u> Closed Corporation or company with, or without, share capital.	Certified copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies
4	<u>Public Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 (Including Companies incorporated under Art 21)	A signed statement of the Company's Secretary confirming that the Company is a public Company.
5	<u>Sole Proprietary</u> or a <u>Partnership</u>	Certified copy of the Identity Document of: a) such Sole Proprietary, or b) Each of the Partners in the Partnership Certified copy of the Partnership agreement.

If the Tendering Entity is a:		Documentation to be submitted with the tender
6	<u>Co-operative</u>	CIPRO CR2 - Certified copies of Company registration document.
7	<u>Joint Venture / Consortium</u>	All the documents (as described above) as applicable to each partner in the joint venture / consortium as well as a certified copy of the joint venture / consortium agreement.

Note:

1. If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court wherein trustees have been duly appointed and authorised
2. Include a certified copy of the Certificate of Change of Name (CM9) if applicable.

3. Registered for VAT proposes in terms of the Value-Added Tax Act (89 of 1991)

Yes

No

(Make an X in the appropriate space)

REGISTRATION NO: _____

FORM RD.C.4 CLASSIFICATION OF BUSINESS

1. The Small Businesses are defined in the National Small Business Act, 1996 (Act 102 of 1996).
2. Information furnished with regard to the classification of Small businesses
 - (a.) Indicate whether the company/entity is defined as a small, medium or micro enterprise by the National Small Business Act.

YES	NO
-----	----

(Tick appropriate box)

- (b.) If the response to 2.(a.) is **YES**, the following must be completed:

- i. Sector/sub-sector in accordance with the Standard Industrial classification:

- ii. Size or class:

- iii. Total full-time equivalent of paid employees:

- iv. Total annual turnover:

- v. Total gross asset value (fixed property excluded):

(A schedule indicating the different sectors is attached to this form.)

- (c.) The tenderer should substantiate the information provided by submitting the following documentation:
 - i. A letter from the tenderer's auditor or an affidavit from the South African Police Services confirming the correctness of the abovementioned information,
 - ii. Company profile indicating the tenderer's staff compliment, and
 - iii. 3 year financial statement or since their establishment if established during the past 3 years.

SCHEDULE OF SECTORS

SIZE OF CLASS	THE TOTAL FULL-TIME EQUIVALENT OF PAID EMPLOYEES	TOTAL TURNOVER	TOTAL GROSS ASSET VALUE (FIXED PROPERTY EXCLUDED)
AGRICULTURE			
Medium	100	R 5 mil	R 5 mil
Small	50	R 3 mil	R 3 mil
Very Small	10	R 500 000	R 500 000
Micro	5	R 200 000	R 100 000
MINING AND QUARRYING			
Medium	200	R 39 mil	R 23 mil
Small	50	R 10 mil	R 6 mil
Very Small	20	R 4 mil	R 2 mil
Micro	5	R 200 000	R 100 000
MANUFACTURING			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5 mil	R 2 mil
Micro	5	R 200 000	R 100 000
ELECTRICITY, GAS & WATER			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
CONSTRUCTION			
Medium	200	R 26 mil	R 5 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 3	R 500 000
Micro	5	R 200 000	R 100 000
RETAIL AND MOTOR TRADE & REPAIR SERVICES			
Medium	200	R 39 mil	R 6 mil
Small	50	R 19 mil	R 3 mil
Very Small	20	R 4 mil	R 600 000
Micro	5	R 200 000	R 100 000
WHOLESALE TRADE, COMMERCIAL AGENTS AND ALLIED SERVICES			
Medium	200	R 64 mil	R 10 mil
Small	50	R 32 mil	R 5 mil
Very Small	20	R 6 mil	R 600 000
Micro	5	R 200 000	R 100 000
CATERING, ACCOMMODATION AND OTHER TRADE			
Medium	200	R 13 mil	R 3 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
TRANSPORT, STORAGE & COMMUNICATIONS			
Medium	200	R 26 mil	R 6 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 600 000
Micro	5	R 200 000	R 100 000
FINANCE & BUSINESS SERVICES			
Medium	200	R 26 mil	R 5 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 500 000
Micro	5	R 200 000	R 100 000
COMMUNITY, SOCIAL AND PERSONAL SERVICES			
Medium	200	R 13 mil	R 6 mil
Small	50	R 6 mil	R 3 mil
Very Small	20	R 1mil	R 600 000
Micro	5	R 200 000	R 100 000

FORM RD.C.5 MBD 5: DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

1. The tenderer is required by law to prepare annual financial statements for auditing their audited annual financial statements:

- i) for the past three years; or
ii) Since the establishment if established during the past three years.

Indicate whether these have been included in the tender:

YES	NO
-----	----

2. Does the tenderer have any undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days?

YES	NO
-----	----

If so, state particulars _____

3. Has any contracts been awarded to the tenderer by an organ of state during the past five years?

YES	NO
-----	----

If so, state particulars _____

4. Has there been any material non-compliance or dispute concerning the execution of such contract?

YES	NO
-----	----

If so, state particulars _____

5. Is any portion of the goods or services expected to be sourced from outside the Republic?

YES	NO
-----	----

If, so state what portion and whether any portion of payment from the municipality is expected to be transferred outside of the Republic.

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.C.6 CERTIFICATE OF AUTHORITY OF SIGNATORY

RESOLUTION of the a meeting of the *Board of Directors/Members/Partners of

(Legally correct full name and registration number, if applicable, of the enterprise)

Held at: _____ (place)

On: _____ (date)

RESOLVED that:

1. The enterprise submits a tender to the Tshwane Metro Municipality in respect of the following project:

Tender Number:	ROC 32-2022/23
Tender Description:	Professional Civil Engineering Services for Providing and Operating of a GIS linked Road and Stormwater as well as other related Infrastructure Management Systems within the City of Tshwane on cloud based system as and when required on tendered rates and available budget: 3-Year Term

2. *Mr/Ms:

in *his/her capacity as

and who will sign as follow:

Proof signature	Proof signature
-----------------	-----------------

be, and is hereby authorized to sign the tender, and any and all other documents and/or correspondence in connection with and relating to the tender for the enterprise mentioned above

NAME	CAPACITY	SIGNATURE

Note:

- *Delete which is not applicable.
- IMPORTANT: This resolution must be signed by all the directors/members/ partners of the tendering enterprise.

Enterprise stamp

Contract: ROC 32-2022/23 Tender for professional Civil Engineering services for providing and operating of a GIS linked road and stormwater as well as other related infrastructure management systems within the City of Tshwane on cloud-based system

3.	Should the number of directors/members/partners exceed the space available above, additional names and signatures must be supplied on a separate page.	
----	--	--

FORM RD.C.7 CERTIFICATE OF AUTHORITY OF SIGNATORY FOR JOINT VENTURES AND CONSORTIA

*Joint venture/consortium name: _____

We, the undersigned, are submitting this tender in a *joint venture/consortium and hereby authorize *Mr/Ms

_____ authorized signatory of the enterprise

_____ acting in the capacity of lead partner

to sign the tender, and any and all other documents and/or correspondence in connection with and relating to the tender for the *joint venture/consortium mentioned above.

Registered name of enterprise	Registration number	% of contract value	Address	Duly authorized signatory	Mark with (x) for lead partner

Note:

1. *Delete which is not applicable.
2. IMPORTANT: This resolution must be signed by all the parties of the joint venture/consortium and every duly authorized signatory for each party to the joint venture/consortium must complete a Form RD.C.15.
3. Should the number of directors/members/partners exceed the space available above, additional names and signatures must be supplied on a separate page.

FORM RD.C.8 PROOF OF REGISTRATION IN TERMS OF THE ENGINEERING PROFESSIONS ACT, 2000

The tenderer must provide proof of persons in their **full time employ** that are registered in terms of the Engineering Professions Act, 2000 (Act 46 of 2000). Tenderer must confirm that registered employees are in full time employment.

NAME	REGISTRATION			Confirm full time employed
	Professional Category	Discipline	ECSA Number	

(Attach documentary proof to this page)

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.C.10 PROOF OF PROFESSIONAL INDEMNITY INSURANCE

The tenderer must provide proof of Professional Indemnity Insurance for at least R10-million per claim and the number of claims unlimited (refer to clause C1.2.2 Data Provided by the Employer).

1. Attach original or certified copy of Professional Indemnity Insurance to this page.
2. In the case of a joint venture / consortium parties must each attach original or certified copy of their Professional Indemnity Insurance.

FORM RD.C.11 VIRTUAL OR PHYSICAL PRESENTATION OF ELECTRONIC CLOUD BASED MANAGEMENT SYSTEM

Upon request, the Lead Consultant will be required to virtually or physically present the cloud-based roads & stormwater, and related infrastructure asset management system electronically to the Bid Evaluation Committee.

With the presentation bidders need to demonstrate how their system addresses the 12 key areas identified in the table below, i.e. Accessibility, GIS capabilities, Inventory, Valuation, Usage and Condition, Quality Control, Decision Support, Management plans, Feedback, Modularity, Data Sharing and Licencing. The presentation need to follow the sequence as set out in the table below.

RAMS Area	Element	Criteria
1. Accessibility	1.1 Web/Mobile based	<p>The RAMS shall be fully web-based to facilitate a client-agnostic environment. The web portal must provide access to RAMS users, whether they are internal or external, to the system's information and functions under predefined access privileges.</p> <p>Both the management system and the mobile data collection application should be device agnostic and can be accessed via the web and an Android operating system.</p> <p>The system shall be secure to protect the integrity of the data and POPIA compliant.</p> <p>The system shall provide a search function allowing users to search features such as roads to be selected by road name, road number, ward or other pre-defined attributes or interactively selecting it on a map interface.</p>
	1.2 User Access control	User access rights are to be defined by the user access credentials for example a district official can see all the assets contained within the district boundaries, a municipal official can only see data related to their specific municipality, specific purpose users can be set up to only have access to specific reports.
	1.3 Mobile data collection	<p>An interactive mobile data collection application is to be developed according to the new TMH9 requirements, including best practice engineering principles for prioritisation of maintenance and rehabilitation projects. The data collection application should seamlessly interface with the RAMS with minimal to no data quality control needed outside of the system. The application should facilitate live tracking of data collection, quality control protocols, off-line data collection as well as functions to ensure that no duplicate inspections or missing inspections occur. The mobile application should aim to collect data on all road infrastructure including structures, signage, and other ancillary assets (road inventory).</p> <p>The mobile application must capture surface distress ratings, which should include, as the minimum, longitudinal, transverse, alligator cracking, rutting, edge cracking, drainage problem, block cracking, patching, potholes, and roughness.</p>
	1.4 Spatial capabilities	The system shall allow the generating of summary reports by Road or Area (such as Municipality, Region, Ward, Suburb, and Maintenance Areas).
2. Geographic Information System (GIS) capabilities	2.1 Map Viewer	<p>Provide Interactive maps & layers, which can be used through the ESRI Arc Suite of software products. The system shall provide integration between ESRI ArcGIS and Pavement and road database.</p> <p>Spatially enabled cloud application to distribute the captured road pavement condition information, road maintenance priority lists and work schedules on a secure internet environment.</p> <p>The viewer shall allow users to view various attributes/properties of the selected asset.</p> <p>The viewer shall allow users to view images, video footprints, and road/street views.</p>

RAMS Area	Element	Criteria
		<p>Map themes should be user-definable, allow search, pan, and print functions. The interface shall allow other systems to request images by location, road name or an address etc., and access all collected information using a user-friendly interface.</p> <p>Spatial Location of proposed maintenance works by type of action should be provided as a map theme.</p> <p>The system shall include the ability to create maps showing pavement condition and repair decisions.</p> <p>The system must allow users to select a road in the GIS map to view the corresponding captured right of way images.</p>
3. Inventory	3.1 Network	<p>Road Network definition according to the latest TRH26.</p> <p>All structures classified according to TMH19 guidelines.</p> <p>Traffic signs classified according to SADC - SARTSM Vol 1.</p> <p>GRAP 17 fixed asset register must be prepared.</p>
	3.2 Asset, Component, Item	<p>The roads should be divided into the different asset types, their components, and items.</p> <p>Provide complete road log per defined road section.</p>
	3.3 GIS	<p>Integrated GIS Map viewer depicting each asset, their detail and location on various interactive map themes should be present.</p>
4. Valuation	4.1 Extent	<p>Visually extent/size of each asset to be defined.</p>
5. Usage and Condition	5.1 Road Visuals (UPMS & PMS)	<p>Keep a record of past and present defects in compliance with the latest Department of Transport TMH9 road condition data standard.</p> <p>The system must allow interactive pavement condition rating input including the type of distress, severity, and extent</p> <p>Make provision for socio-economic factors like built-up areas for consideration during maintenance prioritization.</p>
	5.2 Traffic	<p>Manual Traffic count import function to be developed.</p>
	5.3 Structures (BMS)	<p>Both inventory and deterioration, extent, risk & urgency condition inspection data.</p> <p>Complies with the asset classification and condition inspection guidelines set forth by TMH19.</p>
	5.4 Ancillary Assets (TSMS, RIMS & SMS)	<p>Componentization and condition indicators for all other road assets not classified as a road or structure for example kerbs, signs, traffic calming elements, drainage elements, sidewalks, bollards, guardrail, fences etc.</p> <p>Asset value calculation according to GRAP 17.</p>
	5.5 Stormwater (SMS)	<p>Componentization and condition indicators for all stormwater assets not classified as a road or structure for example pipe/portal culverts, stormwater inlets, stormwater outlets, lined channels, unlined channels, rivers, and streams etc.</p>
	5.6 Data Management	<p>Asset value calculation according to GRAP 17.</p>
6. Quality control	6.1 Data Quality	<p>Data quality management process in place to validate the condition data and check accuracy & integrity.</p> <p>Functions to facilitate control assessments on visual assessment data and the assignment of a data quality acceptance index per assessor without the need to facilitate this quality control measure process outside of the system. This will facilitate a direct data comparison functionality.</p>
7. Decision Support	7.1 Condition Indices	<p>Visual condition indices should be produced using an arithmetic aggregation of distress ratings that are determined following TMH9. This should be calculated for Paved Roads, Unpaved Roads, Structures, and ancillary assets.</p>

RAMS Area	Element	Criteria
		<p>Functional condition indices should be calculated and based on an appraisal of the asset in terms of functional characteristics that affect the quality of use, notably comfort (convenience) safety, congestion, and operating cost.</p> <p>Structural condition indices should be produced using distresses that manifest in the underlying pavements and can be mitigated by a rehabilitation program. This index should be used to determine the remaining useful life of the road structure for strategic periodic maintenance planning.</p> <p>Surface condition indices should be produced using distresses that manifest in the road surface and can be mitigated by a resurfacing program without the need to rehabilitate the underlying pavement. This index should be used to determine the remaining useful life of the surface for strategic maintenance planning.</p>
	7.2 Identification of treatment	<p>Users should be able to configure decision-making processes as per the repair method to be used for different types of road distress conditions.</p> <p>The system should allow the end-user to configure pavement repair methods based on the extent and severity rating of the deficiency type.</p> <p>The system should produce maintenance and rehabilitation actions for each asset with expected cost based on pre-defined unit rates.</p> <p>The system should allow users to override the pavement repair method or priority based on the pavement engineer's experience and/or considering an operational decision.</p> <p>Preventative treatments should be flagged on a list where distress is not yet evident but due to dry and brittle surfacing, listed segments may benefit from diluted emulsion to prevent them from featuring on the resurfacing program.</p>
	7.3 Prioritizing	<p>The condition, urgency and type of maintenance ratings given in the detailed outputs are to be used for preparing maintenance programs in which projects/links are listed according to priority.</p> <p>The system must allow the user to define decision rules for maintenance and construction activities.</p> <p>The system should be able to prioritize the repair work based on parameters such as traffic volume and road condition. Resurfacing projects/links (including asphalt overlays) are to be listed in priority order and divided into those considered necessary the current year, followed by those that should be done the following year. If the budget is insufficient for accommodating all the recommended projects, a cumulative total should provide a ready means for matching the most urgent projects to the available funds.</p> <p>Preliminary reconstruction program that gives tentative recommendations for rehabilitation programming. The estimated cost implications for individual projects/links, as well as the cumulative costs, should be given.</p> <p>The maintenance needs for gravel roads (regravel and/or drainage) listed in order of priority with the unpaved network, divided into regraveling, gravel (upgrade dirt to gravel), drainage and paving needs.</p> <p>The system must provide Maintenance Efficiency Trends.</p> <p>Optimisation by mathematical programming model for the year-by-year basis should be developed.</p>

RAMS Area	Element	Criteria
	7.4 Detailed outputs	<p>The results of the model are to be given for every section of the road in a quantitative report. Apart from numerical assessments, road sections are to be rated on a qualitative scale from very good to very poor for each of:</p> <ul style="list-style-type: none"> • the surfacing condition; • the structure condition; • the functional condition; • the overall condition. <p>The results are therefore to be presented in a variety of summarized forms to assist management:</p> <ol style="list-style-type: none"> 1. A map showing areas requiring attention; 2. A series of histograms giving the distribution of pavement properties for selected sets of pavements; 3. Listings of required surface treatments and rehabilitation projects (with associated costs) in order of priority for use in maintenance programming and budgeting; 4. A series of bar charts giving the area of each type of recommended surfacing; 5. A series of pie charts giving a qualitative indication of the structural and surfacing condition.
	7.5 Depreciation	Remaining useful life should be calculated on all major asset components like, road surface, road structure, ancillary assets etc. using the expected useful life, determination factors and current condition.
	7.6 Project confirmation	Functions available for panel/ inspections (refer to quality control) Decision-Making Tools for Cost / Benefit (or) Life Cycle Cost Analysis.
8. Management Plans	8.1 Plan	<p>Decision Making Tools for optimisation of Routine, Preventive Maintenance, Deferred Maintenance, Rehabilitation and Reconstruction works.</p> <p>The software should provide the ability to produce different repair reports and budget reports based on priorities including road classifications and roadway conditions.</p> <p>The routine maintenance program, a list showing which links need routine maintenance (patching, crack sealing, etc.)</p>
	8.2 Strategy	<p>Backlog calculation and reporting.</p> <p>Identification and prioritisation of the upgrade of dirt roads to gravel standards and gravel roads to paved standards considering the traffic volumes recorded.</p>
	8.3 Financial	<p>Budget Report per Region</p> <p>The system should provide a repair cost based on a user-definable unit cost for each repair method and must provide the ability to alter unit costs and inflation factors for maintenance or construction cost analysis.</p> <p>The system should be able to calculate the repair cost based on the selected repair method and present a cost analysis.</p> <p>Decision-Making Tools to produce road maintenance and rehabilitation budgets.</p>
9. Feedback	9.1 Asset verification	Reports flagging road segments not inspected during a survey with a reason to allow the municipality to analyse whether these road segments should be removed from the asset register or to plan for future mitigation factors to facilitate the condition inspections going forward.

RAMS Area	Element	Criteria
		Reports flagging all ancillary assets not inspected during a survey with a reason to allow the municipality to analyse whether these assets should be removed from the asset register or to plan for future mitigation factors to facilitate the condition inspection for example missing traffic signs.
10. Modularity	10.1 High-Level Management Dashboard	The dashboards are expected to be user-definable and shall be able to display summary information such as condition, inventory, traffic, projects, road asset value etc.
	10.2 Mobile data collection application	All condition surveys and inventory i.e. both for roads and structures will be facilitated using tablets with a mobile data collection application. This data collection application will record all types of defects with quantities.
	10.3 Spatial Relational Roads Database	The RAMS database should be a relational database, which in essence can be described as a tabular database in which logical relationships between records are represented in the design and strictly governed. Single source of data supply ensures accuracy, consistency and integrity in systems and services that reference and consume data.
	10.4 Road Location Referencing System/ Geographic Information System (GIS)	<p>This is a critical component of the overall system. This sub-system is to be GIS (ArcGIS) linked/synchronized and will contain essential inventory data such as road logs, with roads broken down into links and segments. The links are described road category, start and end descriptions and distance, road width, surface type, street names etc. The GIS will also be used to display information from the other support sub-systems.</p> <p>All roads should be dual referenced in that it contains a chainage reference (km) as well as full GPS references. The database should cater for national, provincial, rural, feeder, urban and farm roads which could be incorporated into the system as the system expands.</p>

RAMS Area	Element	Criteria
	10.5 Paved Road Management System (PMS)	<p>The PMS should include various data viewing, data capture and reporting modules for all visual and other pavement data collected on flexible surfaced, concrete surfaced and block paved roads.</p> <p>The PMS should include a data capture and verification module for the “post rating” of visual assessment data acquired by surveillance equipment and, also, a module to do deterioration modelling, undertake prioritization and optimization analysis together with the development of works programmes and multi-year budgets are required. Should the analysis module not be an integral facet of the PMS, the system must be capable of generating data that can be exported to proprietary analysis software such as HDM4.</p> <p>The PMS should contain all the necessary functions to undertake management analyses at strategic, programming, and operational levels for all or part of the core road network. Minimum outputs should include:</p> <ol style="list-style-type: none"> 1. Route classification (network definition) 2. Standard assessment form (paved) 3. Detailed condition assessment 4. Detail output explanation 5. Condition maps 6. Summarised condition assessment - histograms 7. Summarised condition assessment - pie charts 8. Periodic -, scheduled -, Diluted emulsion maintenance programmes 9. Routine maintenance programme 10. Resurfacing summary 11. Segmented Block Paving 12. Jointed Concrete Pavements 13. Performance predictions 14. Maintenance Efficiency Trends <p>Outputs should be focused on identification, quantification, prioritisation, and budgeting.</p>

RAMS Area	Element	Criteria
	10.6 Unpaved Road Management System (URMS)	<p>The unpaved road management system is a suite of application programs for analysing and modelling the condition of the unsurfaced road. The Management Systems provide condition information as well as routine maintenance priorities. Road segments requiring maintenance are highlighted whilst identifying appropriate maintenance measures, reporting on the condition of gravel pavements, and presenting the results in a variety of formats and combinations for different levels of management.</p> <p>The URMS must include at least the following:</p> <ol style="list-style-type: none"> 1. Data processing and analysis including the derivation of condition indices 2. Analysis of maintenance and upgrading needs 3. Automatic mechanism for the assignment of maintenance options 4. Integrated design method of upgrading options 5. Prediction of gravel deterioration and gravel (or earth) loss 6. Optimization and prioritization of maintenance options 7. Monitor unpaved road networks 8. Analyse & model the condition of road segments 9. Communicate regraveling & maintenance needs 10. Address Absent & Insufficient Drainage 11. Link Money Values to provide Optimised Budgets 12. Identify suitable roads for the upgrade to paved roads 13. Process for estimating the value of road assets 14. Generation of reports, graphs, and maps <p>Outputs should be focused on identification, quantification, prioritisation, and budgeting.</p>
	10.7 Structure Management Systems (BMS)	<p>It must be capable of producing statistics on the structure inventory, condition, deterioration trends and priorities together with generating structure maintenance schedules and multi-year budgets.</p>
	10.8 Traffic Management System	<p>The RAMS shall include a system dedicated to traffic counting and management, it shall be able to store information from traffic counts and axle weighing measurements and be able to derive traffic indicators such as the AADT, traffic growth rates, axle loads and vehicle damage factors of the various types of vehicles using labour-intensive data collection methods. The system shall be able to accommodate straight line manual traffic counts as well as intersection counts to illustrate prevailing turn actions.</p> <p>Minimum functionality should include:</p> <ol style="list-style-type: none"> 1. Traffic modelling results visualization, traffic counts 2. Detailed geometric intersection layout module 3. Full integration between PMS, URMS, TSMS, BMS, RIMS and SMS

RAMS Area	Element	Criteria
	10.9 Traffic Signage Information System (TSMS)	<p>Includes functionality to assist in managing traffic signs</p> <p>Key Features include:</p> <ol style="list-style-type: none"> 1. Instant Process Tracking 2. Strategic, Tactical & Operational level outputs 3. Component Location Reference 4. Asset Photo Library 5. Basic Inventory Statistics 6. Condition Description 7. Priority Maintenance Activities 8. Budget and Asset Cost Estimation 9. Flag missing sign plates, poor visibility, or improper use of traffic signs to aid road safety.
	10.10 Roadside infrastructure management system (RIMS)	<p>Includes functionality to assist in managing data within the right of way or what is sometimes referred to as the road reserve. This includes aspects such as off-carriageway features and furnishings, traffic calming elements, surfaced car parks adjacent to roads/streets, footways, accesses, and wayside amenities.</p> <p>Key Features include:</p> <ol style="list-style-type: none"> 1. Instant Process Tracking 2. Strategic, Tactical & Operational level outputs 3. Component Location Reference 4. Asset Photo Library 5. Basic Inventory Statistics 6. Condition Description 7. Priority Maintenance Activities 8. Budget and Asset Cost Estimation
	10.11 Stormwater management system	<p>Includes functionality to assist in managing data within the stormwater management system and should include the following elements but not limited to: inlet structures, outlet structures, manholes, junction boxes, pipe/box culverts, lined channels and unlined channels.</p> <p>Key Features include:</p> <ol style="list-style-type: none"> 1. Instant Process Tracking 2. Strategic, Tactical & Operational level outputs 3. Component Location Reference 4. Asset Photo Library 5. Basic Inventory Statistics 6. Condition Description 7. Priority Maintenance Activities 8. Budget and Asset Cost Estimation 9. Functionality of component 10. As-built data incorporation
11. Data sharing	11.1 Tools	<p>Compliance with the latest Department of Transport TMH18 asset reporting standards for the annual provision of road data to CoT. Provide for the Import & Export of data specifically for (but not limited to) the TMH18 formats.</p>
	11.2 Charts & Reports	<p>Compliance with the latest Department of Transport TMH22 road asset deterioration and maintenance guidelines. Should be filterable, searchable, printable and exportable in various file formats.</p>

RAMS Area	Element	Criteria
		<p>Typical Standard reports are used for providing standard information in a predefined format. For example, print a road log of all roads in a region. Exceptional reports are automatically produced by the system whenever a certain condition is matched, as defined by the user. For example, print all approved bridge projects which are outstanding with a maintenance priority of one (1).</p> <p>Ad-hoc reports that the user can select at any time. This also includes the report types as described above. The user can select from pre-defined criteria before printing a report whilst selecting from and to date, summarised or detailed, specific region or total network.</p>
	11.3 Visualization Tools	<p>Comprehensive dashboard that provides a quick overview of assets, reporting components and integrated GIS interface.</p> <p>The tools must allow users to view the raw as well as processed final data to be queried and viewed in a GIS integrated environment.</p> <p>These dashboards should be exportable for use in drafting reports.</p>
12. Licencing		Can accommodate multi-usability with an unlimited licence. Provision must be made for at least 20 power/super users, 10 Administrative users and 20 query users.

FORM RD.D.1 MANDATORY REQUIREMENTS

Failure to submit any of the mandatory required documents will result in automatic disqualification

Lead Consultant

1. Company experience

Proof of three (3) completed projects for the development and maintenance of roads and stormwater asset management systems. **(Confirmation of successful completion of projects from employers must be submitted with the tender document as proof).**

2. Staffing

Append curriculum vitae clearly detailing relevant experience for each of the key staff outlined below with documentary proof of level of education and training (NB. Submit certified copies of all qualification and registration certificates). Attach project related organogram clearly identifying roles and responsibilities of each and every role player.

Personnel can have multiple roles but cognizance must be taken that some tasks will happen simultaneously.

a. Project Manager

Must be a professional civil engineer or professional civil engineering technologist registered with ECSA, or professional project manager registered with SACPCMP. A minimum of 8 years' experience in roads construction.

b. PMS Specialist

Must be a registered professional civil engineer or professional civil engineering technologist with ECSA. A minimum of 8 years working experience in pavement management systems.

c. BMS Specialist

Must be a registered professional civil engineer or professional civil engineering technologist with ECSA. A minimum of 8 years working experience in bridge management systems.

d. RIMS & SMS Specialist

Must be a registered professional civil engineer or professional civil engineering technologist with ECSA. A minimum of 8 years working experience in stormwater management systems.

e. System Specialist / Senior System Analyst

Must have an Information Technology Degree NQF 7. A minimum of 5 years ICT development and maintenance experience in infrastructure management systems including GIS experience.

Staffing Requirement Check List

Staff	Curriculum Vitae outlining Experience		Certified Qualification		Certified Professional Registration		Registration Number	Annexure
	Yes	No	Yes	No	Yes	No		
Project Manager								
PMS Specialist								
BMS Specialist								
RIMS & SMS Specialist								
System Specialist / Senior System Analyst					N/A		N/A	

Assessment Consultant

1. Company experience

Proof of three (3) completed projects on visual assessment of roads and stormwater assets. **(Confirmation of successful completion of projects from employers must be submitted with the tender document as proof).**

2. Staffing

Append curriculum vitae clearly detailing relevant experience for each of the key staff outlined below with documentary proof of level of education and training (NB. Submit certified copies of all qualifications and registration certificates). Attach project related organogram clearly identifying roles and responsibilities of each and every role player.

Personnel can have multiple roles, but cognizance must be taken that some tasks will happen simultaneously.

a. Experienced Road Assessor

A qualified engineering technician with a National Diploma at NQF level 6. A minimum of 5 years' experience in the roads industry. A minimum experience of 3 years in visual assessments of surfaced roads.

b. Experienced Bridge Assessor

Bridge Inspector: Shall be a Professional Engineer or Professional Technologist who is a current COTO certified Bridge Inspector. Proof of certification by means of a copy of the certificate issued is required

c. Traffic Signs Assessor

A qualified engineering technician with a National Diploma at NQF level 6. A minimum of 5 years' experience in the roads industry.

d. Roadside Infrastructure Assets Assessor

A qualified engineering technician with a National Diploma at NQF level 6. A minimum of 5 years' experience in the roads industry.

e. Stormwater Assessor

A qualified engineering technician with a National Diploma at NQF level 6. A minimum of 5 years' experience in the roads industry.

Staffing Requirement Check List

Staff	Curriculum Vitae outlining Experience		Certified Qualification		Annexure
	Yes	No	Yes	No	
Experienced Road Assessor					
Experienced Bridge Assessor					
Traffic Signs Assessor					
Roadside Infrastructure Assets Assessor					
Stormwater Assessor					

3. Bank Rating

Lead Consultant

Proof of minimum **Level C stamped Bank rating at R2-million quote** from the bidder's banking institution must be provided with the tender.

Assessment Consultant

Proof of minimum **Level C stamped Bank rating at R0.5-million quote** from the bidder's banking institution must be provided with the tender.

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

FORM RD.E.1 RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before submission of this tender, amending or amplifying the tender documents, have been taken in account in this tender offer:

	DATE	REFERENCE	TITLE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters):

Signature:

Date:

PORTION 2: CONTRACT

PART C1: AGREEMENTS AND CONTRACT DATA

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C1.1 FORM OF OFFER AND ACCEPTANCE

STAMP

OFFER

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

ROC 32-2022/23: Tender for professional Civil Engineering services for providing and operating of a GIS linked road and stormwater as well as other related infrastructure management systems within the City of Tshwane on cloud-based system as and when required on tendered rates and available budget: 3-Year Term

The tenderer, identified in the offer signature block below, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this form of offer and acceptance, the tenderer 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 contract identified in the contract data.

THE OFFERED TOTAL OF PRICES PER SECTION INCLUSIVE OF VALUE ADDED TAX IS

SECTION A: LEAD CONSULTANT

R (in figures)

(in words)

SECTION B1: ASSESSMENT CONSULTANT – PAVEMENT MANAGEMENT SYSTEM

R (in figures)

(in words)

SECTION B2: ASSESSMENT CONSULTANT – TRAFFIC SIGNS MANAGEMENT SYSTEM

R (in figures)

(in words)

SECTION B3: ASSESSMENT CONSULTANT - STRUCTURE MANAGEMENT SYSTEM

R (in figures)

(in words)

SECTION B4: ASSESSMENT CONSULTANT – ROADSIDE INFRASTRUCTURE MANAGEMENT SYSTEM

R *(in figures)*

(in words)

SECTION B5: ASSESSMENT CONSULTANT – STORMWATER MANAGEMENT SYSTEM

R *(in figures)*

(in words)

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Acceptance of this offer will not guarantee that the tenderer will be allocated any project during the duration of the appointment. Allocation of projects will be done solely at the discretion of the employer.

FOR AND ON BEHALF OF THE TENDERER:

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at _____ on this _____ day of _____

WITNESSES:

(Full name in BLOCK letters and signature)

1. _____

2. _____

ACCEPTANCE

By signing this part of this form of offer and acceptance, the employer identified below accepts the tenderer's Offer. In consideration thereof, the employer shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offer shall form an agreement, between the employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1 Agreements and Contract Data

Part C2 Pricing Data

Part C3 Scope of Work

and documents or parts thereof, which may be incorporated by reference into Parts C1 to C3 above.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto listed in the tender schedules as well as any changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The tenderer shall within two weeks after receiving a letter of acceptance, contact the employer's agent (whose details are given in the contract data) to arrange the delivery of guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five days of the date of such receipt notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

FOR AND ON BEHALF OF THE EMPLOYER:

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at

_____ on this _____ day of _____

WITNESSES:

(Full name in BLOCK letters and signature)

1.

2.

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the employer prior to the tender closing date is limited to those permitted in terms of the conditions of tender;
2. A tenderer's covering letter shall not be included in the final contract document. Should any matter in such, letter, which constitutes a deviation as aforesaid become the subject of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here;
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the parties becomes an obligation of the contract shall also be recorded here;
4. Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the contract.

4.1	Subject:	
	Details:	
4.2	Subject:	
	Details:	
4.3	Subject:	
	Details:	
4.4	Subject:	
	Details:	
4.5	Subject:	
	Details:	

By the duly authorised representatives signing this agreement, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from the amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change 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, 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 Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

FOR AND ON BEHALF OF THE TENDERER:

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at

on this

day of

WITNESSES:

(Full name in BLOCK letters and signature)

1.

2.

FOR AND ON BEHALF OF THE EMPLOYER:

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at

on this

day of

WITNESSES:

(Full name in BLOCK letters and signature)

1.

2.

C1.2 CONTRACT DATA

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C.1.2.1	GENERAL CONDITIONS OF CONTRACT	Error! Bookmark not defined.
C1.2.2	DATA PROVIDED BY THE EMPLOYER.....	Error! Bookmark not defined.
C1.2.3	DATA PROVIDED BY THE CONTRACTOR	Error! Bookmark not defined.

C1.2.1 GENERAL CONDITIONS OF CONTRACT

The general conditions of contract applicable to this contract shall be **NEC3 Professional Services Contract (Third edition of 2005 with amendments April 2013)**, as well as the Data provided by Employer.

Tenderers, contractors and subcontractors shall obtain their own copies of the document **NEC3 Professional Services Contract (Third edition of 2005 with amendments April 2013)** for tendering purposes and for use for the duration of the contract and shall bear all expenses in this regard:

Engineering Contracting Strategies (ECS)

Telephone: 011 803 3008

E-Mail: admin@ecs.co.za

Web: www.ecs.co.za

OR

Consulting Engineers South Africa (CESA)

Telephone: 011 463 2022

E-Mail: general@cesa.co.za

Web: www.cesa.co.za

OR

South African Institution of Civil Engineering (SAICE)

Telephone: 011 80505947 / 48 / 53

E-Mail: civilinfo@saice.org.za

Web: www.saice.org.za

C1.2.2 DATA PROVIDED BY THE EMPLOYER

CLAUSE/OPTION	DATA
	<ul style="list-style-type: none"> The conditions of contract are the core clauses and the clauses for main Option G: Term contract dispute resolution Option W1: Dispute resolution and secondary Options X1: Price adjustment for inflation X2: Changes in the law X9: Transfer of rights X10: Employer's Agent X11: Termination by the Employer Z: Additional conditions of contract <p>of the NEC3 Professional Services Contract, 2005 (with amendments June 2006)</p>
1. General	
10.1	<ul style="list-style-type: none"> The Employer is City of Tshwane. The Employer has authorised the Group Head to act on his behalf in respect of this Contract, save for such duties or functions: <ul style="list-style-type: none"> which other holders of office ex officio execute on behalf of the Employer; or for which the Group Head has no authority and the Employer's approval is required before execution thereof. The Group Head is: Mr NC Phanyane Middestad Tower Building 252 Thabo Sehume Street, Pretoria 0001
11.2(9)	<ul style="list-style-type: none"> The services are for the provision of professional services specified in the Scope and identified in the Acceptance portion of the Form of Offer and Acceptance
11.2(10)	<ul style="list-style-type: none"> The following matters will be included in the Risk Register <ul style="list-style-type: none"> i. Availability of funds approved by Employer on the budget for the project.
11.2(11)	<ul style="list-style-type: none"> The Scope is in the document called Part C3: Scope of Work
12.2	<ul style="list-style-type: none"> The law of the contract is the law of the Republic of South Africa subject to the jurisdiction of the Courts of South Africa
13.1	<ul style="list-style-type: none"> The language of the contract is English
13.3	<ul style="list-style-type: none"> The period for reply is 2 (two) weeks
13.6	<ul style="list-style-type: none"> The period for retention is 5 (five) years following Completion or earlier termination.

CLAUSE/OPTION	DATA								
3 Time									
31.2	<ul style="list-style-type: none"> The starting date is the date which the consultant receives a signed copy of the contract document with a schedule of deviations, if any. 								
11.2(3)	<ul style="list-style-type: none"> The completion date is 36 months from appointment <p><i>Note: If no completion date is provided the Consultant will perform the Services until completed as per Scope of Work</i></p>								
31.1	<ul style="list-style-type: none"> The Consultant submits revised programmes at intervals no longer than 1 (one) month. 								
5. Payment									
50.1	<ul style="list-style-type: none"> The assessment interval is monthly. 								
50.3	<ul style="list-style-type: none"> The expenses stated by the Employer are <table border="1"> <thead> <tr> <th>Item</th><th>Amount</th></tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> plan printing of documents issued to the Employer or to Others for Construction or tendering purposes photocopying of documents other than general correspondence, minor reports and contractual reports which are issued to the Employer covers and binding of documents issued to the Employer or to Others for construction or tendering purposes maps, models and presentation materials </td><td> <p>Market related cost or in accordance with the latest Rates for Reimbursable expenses published on</p> <p>www.publicworks.gov.za/consultants</p> </td></tr> <tr> <td> <ul style="list-style-type: none"> parking charges and toll fees within the Tshwane municipal area casual labour and miscellaneous hand tools and materials </td><td>Cost</td></tr> <tr> <td> <ul style="list-style-type: none"> special equipment required to perform specific aspects of a Time Charge Order which is not included in the staff rates specialist studies undertaken by appropriately qualified and competent professionals tests and, where applicable, the making good following such test </td><td>Open market or competitively tendered process with all deductions for all discounts, rebates and taxes that can be recovered</td></tr> </tbody> </table>	Item	Amount	<ul style="list-style-type: none"> plan printing of documents issued to the Employer or to Others for Construction or tendering purposes photocopying of documents other than general correspondence, minor reports and contractual reports which are issued to the Employer covers and binding of documents issued to the Employer or to Others for construction or tendering purposes maps, models and presentation materials 	<p>Market related cost or in accordance with the latest Rates for Reimbursable expenses published on</p> <p>www.publicworks.gov.za/consultants</p>	<ul style="list-style-type: none"> parking charges and toll fees within the Tshwane municipal area casual labour and miscellaneous hand tools and materials 	Cost	<ul style="list-style-type: none"> special equipment required to perform specific aspects of a Time Charge Order which is not included in the staff rates specialist studies undertaken by appropriately qualified and competent professionals tests and, where applicable, the making good following such test 	Open market or competitively tendered process with all deductions for all discounts, rebates and taxes that can be recovered
Item	Amount								
<ul style="list-style-type: none"> plan printing of documents issued to the Employer or to Others for Construction or tendering purposes photocopying of documents other than general correspondence, minor reports and contractual reports which are issued to the Employer covers and binding of documents issued to the Employer or to Others for construction or tendering purposes maps, models and presentation materials 	<p>Market related cost or in accordance with the latest Rates for Reimbursable expenses published on</p> <p>www.publicworks.gov.za/consultants</p>								
<ul style="list-style-type: none"> parking charges and toll fees within the Tshwane municipal area casual labour and miscellaneous hand tools and materials 	Cost								
<ul style="list-style-type: none"> special equipment required to perform specific aspects of a Time Charge Order which is not included in the staff rates specialist studies undertaken by appropriately qualified and competent professionals tests and, where applicable, the making good following such test 	Open market or competitively tendered process with all deductions for all discounts, rebates and taxes that can be recovered								

CLAUSE/OPTION	DATA		
51.1 51.2 51.5	undertake by specialists or accredited laboratories		
	– vehicle travel within the Tshwane Municipal area. No vehicle travel outside the boundaries of the Tshwane Municipal are will be paid.		In accordance with the latest Rates for Reimbursable expenses published on www.publicworks.gov.za/consultants
	• The period within which payment is made is 30 (thirty) days .		
	• The currency of this contract is South African Rand (ZAR) .		
• The interest rate is 2% (two percent) per annum above the prime lending rate of the Employer’s bank at the time an interest payment is due.			
8. Indemnity, insurance and liability			
81.1	• The amounts of insurance and the periods for which the Consultant maintains insurance are		
	Event	Cover	Period following Completion of the whole of the services or earlier termination
	Failure of the consultant to use the skill and care normally used by professionals providing services similar to the services	The Consultant shall insure against professional negligence, errors and omissions under a Professional Indemnity policy for at least R10-million per claim and the number of claims unlimited	5 years
	Death of or bodily injury to a person (not an employee of the Consultant) or loss of or damage to property resulting from an action or failure to take action by the Consultant	As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and the Consultant’s common law liability for people falling outside the scope of the Act with a limit of indemnity of not less than R5-million in respect of each claim, without limit to the number of claims	12 months
	Death or bodily injury to employees of the Consultant arising out of and in the course of their employment in	That which is prescribed by the Compensation Injuries and disease Act No. 130 of 1993 as amended and whatever the Consultant deems desirable in addition	12 months

CLAUSE/OPTION		DATA		
		connection with this contract		
82.1		<ul style="list-style-type: none"> The Consultant's total liability to the Employer for all matters arising under or in connection with this contract, other than the excluded matters is limited to the amount of the insurance cover which this contract require. 		
9	Termination	<ul style="list-style-type: none"> No data required for this section of the conditions of contract. 		
10		Data for main Option clause		
G	Term contract			
21	Consultant's obligations			
21.4		<ul style="list-style-type: none"> The Consultant prepares forecasts of the total Time Charge and expenses at intervals no longer than 30 (thirty) days. 		
11		Data for Option W1		
W1	Option W1			
W1.1		<ul style="list-style-type: none"> The Adjudicator is the person selected by the Parties in terms of the relevant Z Clause from the Panel of NEC Adjudicators set up by the Joint Civils Division of the Institution of Civil Engineers and the South African Institution of Civil Engineering (see www.jointcivils.co.za). 		
W1.2(3)		<ul style="list-style-type: none"> The adjudicator nominating body is the Chairman of the Joint Civils Division of the Institution of Civil Engineers and the South African Institution of Civil Engineering (see www.jointcivils.co.za). 		
W1.4(2)		<ul style="list-style-type: none"> The tribunal is a South African court of law. 		
12		Data for secondary Option clauses		
X1	Price adjustment for inflation			
X1.1		<ul style="list-style-type: none"> The index is the index as per Statistical News Release P0140, Table B1 – CPI Headline, as published by Statistics South Africa 		
		<ul style="list-style-type: none"> The staff rates are: <ul style="list-style-type: none"> fixed at the Contract Date and are not variable with changes are those that are based on a rate per hour. variable with changes in salary paid to individuals are those derived from the total annual cost of employment or the daily market related wage. 		
X2	Changes in law			
X2.1		<ul style="list-style-type: none"> The <i>law of the project</i> is the law of the Republic of South Africa subject to the jurisdiction of the Courts of South Africa. 		

CLAUSE/OPTION	DATA
<p>X10 Employer's Agent</p> <p>X10.1</p>	<ul style="list-style-type: none"> The Employer's Agent is stated in the Tender Data. The authority of the Employer's Agent is fully empowered to act on behalf of the Employer for the services covered by the Task Order and will accept, or not accept, the Consultant's assessment of the amount due in terms of the contract
<p>Z Additional conditions of contract</p>	<p>The additional conditions of contract are:</p>
<p>Z1 Tax Invoices</p>	<p>The Consultant's invoice</p> <p>Delete the first sentence of core Clause 50.2 and replace by:</p> <p><i>Invoices submitted by the Consultant to the Employer include:</i></p> <ul style="list-style-type: none"> <i>the details stated in the Scope to show how the amount due has been assessed, and</i> <i>the details required by the Employer for a valid tax invoice.</i> <p>Delete the first sentence of core Clause 51.1 and replace by:</p> <p><i>Each payment is made by the Employer within three weeks of receiving the Consultant's invoice showing the details which this contract requires or, if a different period is stated in the Contract Data, within the period stated</i></p>
<p>Z2 Communications</p>	<p>Add to the end of the first sentence in core Clause 13.1</p> <p><i>Excluding communication by a communication protocol allowing the interchange of short text messages between mobile telephone devices and a store-and-forward method of writing, sending, receiving and saving messages over the internet.</i></p>
<p>Z3 Selection and appointment of the Adjudicator</p>	<ul style="list-style-type: none"> A Party may at any time notify the other Party of the names of two persons he has chosen from the Panel of NEC Adjudicators set up by the Joint Civils Division of the Institution of Civil Engineers and the South African Institution of Civil Engineering (see www.jointcivils.co.za) whose availability to act as the Adjudicator the notifying Party has confirmed. The other Party selects one of the two persons chosen to be the Adjudicator within four days of receiving the notice, failing which the person chosen by the notifying Party will be the Adjudicator. The Parties appoint the selected Adjudicator under the NEC Adjudicator's Contract, June 2005 with amendments June 2006.
<p>Z4 Notification of a compensation event</p>	<p>Replace <i>eight weeks</i> in clause 61.3 with <i>four weeks</i></p>

C1.2.3 DATA PROVIDED BY THE CONSULTANT

CLAUSE/OPTION	DATA
1. Definitions	<ul style="list-style-type: none"> The legal name of the Service Provider is:
	<ul style="list-style-type: none"> Physical Address:
	<ul style="list-style-type: none"> Postal Address:
	<ul style="list-style-type: none"> Telephone
	<ul style="list-style-type: none"> Facsimile:
	<ul style="list-style-type: none"> E-Mail Address:
5.3 Designated Representative	<ul style="list-style-type: none"> The authorised and designated representative of the Service Provider is:
	<ul style="list-style-type: none"> The address for receipt of communications is:
	<ul style="list-style-type: none"> Physical Address:
	<ul style="list-style-type: none"> Postal Address:
	<ul style="list-style-type: none"> Telephone
	<ul style="list-style-type: none"> Facsimile:
	<ul style="list-style-type: none"> E-Mail Address:

Contract: ROC 32-2022/23 Tender for professional Civil Engineering services for providing and operating of a GIS linked road and stormwater as well as other related infrastructure management systems within the City of Tshwane on cloud-based system

[illegible]

C1.3 HEALTH AND SAFETY AGREEMENT

Article of Agreement in terms of Section 37(2) of the Occupational Safety Act, 1993 between

CITY OF TSHWANE

(Hereinafter referred to as the "EMPLOYER")

AND

Herein represented by _____ in his/her capacity as _____ duly authorised by
virtue of a resolution dated _____, attached hereto Annexure A, of the said

(herein after referred to as the "SERVICE
PROVIDER")

WHEREAS the SERVICE PROVIDER is the mandatory of the EMPLOYER as contemplated in an agreement in respect of

ROC 32-2022/23: Tender for Professional Civil Engineering Services for Providing and Operating of a GIS linked road and stormwater as well as other related infrastructure management systems within the City of Tshwane on cloud-based system as and when required on tendered rates and available budget: 3-Year Term

AND WHEREAS section 37 of the Occupational Health and Safety act, 1993 (Act 85 of 1993, hereinafter referred to as the "ACT"), imposes certain powers and duties upon the EMPLOYER.

AND WHEREAS the parties have agreed to enter into an agreement in terms of section 37(2) of the ACT.

NOW THEREFORE the parties agree as follows:

- (a) The SERVICE PROVIDER undertakes to acquaint the appropriate officials and employees of the SERVICE PROVIDER with all relevant provisions of the ACT and the regulations promulgated in terms thereof.
- (b) The SERVICE PROVIDER undertakes that all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations will be fully complied with. Provided that should the EMPLOYER prescribe certain arrangements and procedures, that same shall be observed and adhered to by the SERVICE PROVIDER, his officials and employees. The SERVICE PROVIDER shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
- (c) The SERVICE PROVIDER hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedure, if any, imposed by the ACT and Regulations and the EMPLOYER expressly absolves the EMPLOYER from itself being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedure as the case may be.

- (d) The SERVICE PROVIDER agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the SERVICE PROVIDER has complied with the undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the SERVICE PROVIDER, or to inspect any appropriate records held by the SERVICE PROVIDER or to take such steps it may deem necessary to remedy the default of the SERVICE PROVIDER at the cost of the SERVICE PROVIDER.
- (e) The SERVICE PROVIDER shall be obliged to report forthwith to the EMPLOYER any investigations, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such an investigation, complaint or criminal charge as the case may be

FOR AND ON BEHALF OF THE SERVICE PROVIDER:

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at

_____ on this _____ day of _____

WITNESSES:

(Full name in BLOCK letters and signature)

1. _____

2. _____

FOR AND ON BEHALF OF THE EMPLOYER:

NAME:

(in BLOCK letters)

CAPACITY:

(of authorized agent)

SIGNATURE:

(of authorized agent)

SIGNED at

_____ on this _____ day of _____

WITNESSES:

(Full name in BLOCK letters and signature)

1. _____

2. _____

C1.4 ADJUDICATOR'S AGREEMENT

This agreement is made on the _____ day of _____ between:

_____ (name of company / organisation)

of _____

_____ (address) and

_____ (name of company / organisation)

of _____

_____ (address) (the

Parties) and

_____ (name of Adjudicator)

of _____

_____ (address) (the

Adjudicator).

Disputes or differences may arise/have arisen⁴ between the Parties under a Contract dated _____ and known as _____

and these disputes or differences shall be/have been⁵ referred to adjudication in accordance with the CIDB Adjudication Procedure, (hereinafter called "the Procedure") and the Adjudicator may be or has been requested to act.

IT IS NOW AGREED as follows:

- 1 The rights and obligations of the Adjudicator and the Parties shall be as set out in the Procedure.
- 2 The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the Procedure.
- 3 The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses in accordance with the Procedure as set out in the Contract Data.
- 4 The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.
- 5 The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED by:

Name:

who warrants that he / she is duly authorised to sign for and on behalf of the first Party in the presence of

SIGNED by:

Name:

who warrants that he / she is duly authorised to sign for and behalf of the second Party in the presence of

SIGNED by:

Name:

the Adjudicator in the presence of

Witness

Name:

Address:

Witness:

Name

Address:

Witness:

Name:

Address:

Date:

Date:

Date:

Contract Data

1	The Adjudicator shall be paid at the hourly rate of R _____ in respect of all time spent upon, or in connection with, the adjudication including time spent travelling.
2	The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to: (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs. (b) Telegrams, telex, faxes, and telephone calls. (c) Postage and similar delivery charges. (d) Travelling, hotel expenses and other similar disbursements. (e) Room charges. (f) Charges for legal or technical advice obtained in accordance with the Procedure.
3	The Adjudicator shall be paid an appointment fee of R _____. This fee shall become payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an Invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.
4	The Adjudicator is/is not ⁶ currently registered for VAT.
5	Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.
6	All payments, other than the appointment fee (item 3) shall become due 7 days after receipt of invoice, thereafter interest shall be payable at 5% per annum above the Reserve Bank base rate for every day the amount remains outstanding.

PART C2: PRICING DATA

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C2.1 PRICING INSTRUCTIONS

1. General

- 1.1 This section provides the tenderer with guidelines and requirements with regard to the completion of the Price Schedule. The Schedule must be completed in black ink and the tenderer is referred to the Conditions of Tender in regard to the correction of errors.
- 1.2 The Price Schedule shall be read with all the documents which form part of this Contract.
- 1.3 The fees used in the Pricing Schedule are from the latest Guideline of the Department of Public Works of South Africa
- 1.4 All fees and sums of money quoted in the Price Schedule shall be in rands and whole cents. Fractions of a cent shall be discarded.
- 1.5 All prices and rates entered in the Price Schedule must be excluding VAT. VAT will be added last on the summary page of the Price Schedule.
- 1.6 Should excessively high discount percentages be tendered, such discounts may be of sufficient importance to warrant rejection of a tender by the Employer
- 1.7 The Price Schedule will be used for evaluation purposes only and payment will be done for actual work completed.
- 1.8 Each schedule will be evaluated separately, and the employer reserves the right to award different sections or only some sections to individual consultants. Only one consultant will be appointed as a lead consultant and only one consultant per section. A consultant can be awarded multiple sections within the tender.
- 1.9 The consultants are allowed to bid for Lead Consultant or Assessment Consultant or for both Lead Consultant and Assessment Consultant.
- 1.10 The tendered rates are deemed to include for all expenses, costs, profit, general obligations, forth nightly meetings for the first six months and thereafter monthly etc., necessary to carry out the professional services described in the various documents.
- 1.11 The client does not guarantee that the projects will be completed in one continuous stage.
- 1.12 The employer reserves a right to conduct service provider's capability to deliver on the contract and as such any service provider found to pose a risk of non-delivery on any material fact will and/or shall be disqualified.
- 1.13 Undertake Unbundling and componentisation of Roads and Stormwater assets in line with the respective adopted data dictionaries
- 1.14 Undertake annual Fixed Asset Register GRAP 17 Asset Verification through the designed and adopted GRAP packs which includes but no limited to impairments, Expected Useful Life and Remaining Useful Review, Net Book Value Review, etc.
- 1.15 Develop roads, stormwater, and related infrastructure Asset Management Strategy in line with CoT Asset Management Policy

2 Corrections of entries made by tenderer

Any entry made by the Tenderer in the Price Schedule, forms, etc, which the tenderer desires to change, shall not be erased or painted out. A line shall be drawn through the incorrect entry and the correct entry shall be written above in black ink and the full signature of the Tenderer shall be placed next to the correction.

C2.2 PRICING SCHEDULE

SECTION A: LEAD CONSULTANT

SECTION A1: PAVEMENT MANAGEMENT SYSTEM (PMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Unpaved Roads (Gravel / Dirt Roads)					
1.1	Provide a fully functional Cloud-based GRMS (gravel roads)	-	Lump Sum	-		
1.2	Processing and reporting	4000	km			
2	Surfaced Roads					
2.1	Provide a fully functional Cloud-based PMS (surfaced roads)	-	Lump Sum	-		
2.2	Processing and Reporting	7 000	km			
2.3	Control assessments 10% sampling	700	km			
3	Asset Management (GRAP 17)					
3.1	Unbundling & Componentisation	7 000	km			
3.2	GRAP Packs annual Asset Verification	-	Lump Sum			
3.3	Develop roads, stormwater and related infrastructure Asset Management Strategy in line with CoT Asset Management Policy	-	Lump Sum	-		
4	Software					
4.1	Annual PMS software licence and maintenance support	3	year			
4.2	Data Integration (MS SQL, POSTGRESQL GIS extension or TMH18) exports)	-	Lump Sum	-		
5	Training					
5.1	Training PMS power users	5	day			
5.2	Training PMS assessors on service providers software	5	day			
Carry total forward to Summary of Pricing Schedule Section A1						

Should it happen that the Lead Consultant also be appointed as Assessment Consultant, then item 2.3 of Section A will not be applicable throughout the contract.

SECTION A2: TRAFFIC SIGNS MANAGEMENT SYSTEM (TSMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Traffic Signs					
1.1	Provide a fully functional Cloud based TSMS	-	Lump Sum	-		
1.2	Processing and reporting	250 000	No.			
2	Asset Management (GRAP 17)					
2.1	Unbundling & Componentisation	250 000	No.			
2.2	GRAP Packs annual Asset Verification	-	Lump Sum	-		
3	Software					
3.1	Annual TSMS software licence and maintenance support	3	year			
3.2	Data integration (MS SQL, POSTGRESQL GIS extension or TMH18)	-	Lump Sum	-		
4	Training					
4.1	Training TSMS power users	5	day			
4.2	Training TSMS assessors on service providers software	5	day			
Carry total forward to Summary of Pricing Schedule Section A2						

SECTION A3: STRUCTURE MANAGEMENT SYSTEM (BMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Structures					
1.1	Provide a fully functional Cloud based BMS	-	Lump Sum	-		
1.2	Processing and reporting	650	No.			
2	Asset Management (GRAP 17)					
2.1	Unbundling & Componentisation	650	No.			
2.2	GRAP Packs annual Asset Verification	-	Lump Sum	-		
3	Software					
3.1	Annual BMS software licence and maintenance support	3	year			
3.2	Data Integration (MS SQL, POSTGRESQL GIS extension or TMH18)	-	Lump Sum	-		
4	Training					
4.1	Training BMS power users	5	day			
4.2	Training BMS assessors on service providers software	5	day			
Carry total forward to Summary of Pricing Schedule Section A3						

SECTION A4: ROADSIDE INFRASTRUCTURE MANAGEMENT SYSTEM (RIMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Roadside Infrastructure					
1.1	Provide a fully functional Cloud based RIMS	-	Lump Sum	-		
1.2	Processing and reporting					
1.2.1	Bollards	2 000	No.			
1.2.2	Walkways & Cycle Lanes	1 000	km			
1.2.3	Kerbing	10 000	km			
1.2.4	Guardrails	50 000	m			
1.2.5	Fencing	50 000	m			
1.2.6	Ancillary assets e.g. traffic calming, bus shelters	1 000	No			
2	Asset Management (GRAP 17)					
2.1	Unbundling & Componentisation					
2.1.1	Bollards	2 000	No.			
2.1.2	Walkways & Cycle Lanes	1 000	km			
2.1.3	Kerbing	10 000	km			
2.1.4	Guardrails	50 000	m			
2.1.5	Fencing	50 000	m			
2.1.6	Ancillary assets e.g. traffic calming, bus shelters	1 000	No.			
2.2	GRAP Packs annual Asset Verification	-	Lump sum	-		
3	Software					
3.1	Annual RIMS software licence and maintenance support	3	year			
3.2	Data Integration (MS SQL, POSTGRESQL GIS extension or TMH18)	-	Lump Sum	-		
4	Training					
4.1	Training RIMS power users	5	day			
4.2	Training RIMS assessors on service providers software	5	day			
Carry total forward to Summary of Pricing Schedule Section A4						

SECTION A.5: STORMWATER MANAGEMENT SYSTEM (SMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Stormwater Infrastructure					
1.1	Provide a fully functional Cloud based Stormwater Management System	-	Lump Sum	-		
1.2	Processing and reporting					
1.2.1	Pipe culverts	500	km			
1.2.2	Portal culverts	10	km			
1.2.3	Stormwater inlets (kerb inlet, field inlet, grid inlet)	20 000	No.			
1.2.4	Lined channels	100	km			
1.2.5	Unlined Channels	10	km			
1.2.6	Rivers and streams	500	km			
1.2.7	Stormwater outlets	500	No.			
2	Asset Management (GRAP 17)					
2.1	Unbundling & Componentisation					
2.1.1	Pipe culverts	500	km			
2.1.2	Portal culverts	10	km			
2.1.3	Stormwater inlets (kerb inlet, field inlet, grid inlet)	20 000	No.			
2.1.4	Lined channels	1100	km			
2.1.5	Unlined Channels	10	km			
2.1.6	Rivers and streams	500	km			
2.1.7	Stormwater outlets	500	No.			
2.2	GRAP Packs annual Asset Verification	-	Lump sum	-		
3	Software					
3.1	Annual RIMS software licence and	3	year	-		
3.2	Data Integration (MS SQL, POSTGRESQL GIS extension or TMH18)	-	Lump Sum	-		
4	Training					
4.1	Training RIMS power users	5	day	-		
4.2	Training RIMS assessors on service providers software	5	day			
Carry total forward to Summary of Pricing Schedule Section A5						

SECTION A6: TIME BASED FEES

Category of staff	Rate (per hour)	Discount	Discounted Rate (per hour)	Hours	Discounted Fee	
Registered professional principals	R 1,982	%	R	10	R	
Registered professionals	R 1,396	%	R	20	R	
Registered technicians	R1,167	%	R	30	R	
Carry total forward to Summary of Pricing Schedule Section A6					R	In compliance with the CDB Standard for Uniformity

SECTION B: ASSESSMENT CONSULTANT

SECTION B1: PAVEMENT MANAGEMENT SYSTEM (PMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Unpaved Roads (Gravel / Dirt Roads)					
1.1	Inventory (new roads)	10	km			
1.2	Evaluation (according TMH9)	4 000	km			
2	Surfaced Roads					
2.1	Inventory (new roads)	50	km			
2.2	Evaluation (according to TMH 9)	7 000	km			
Carry total forward to Summary of Pricing Schedule Section B1						

SECTION B2: TRAFFIC SIGNS MANAGEMENT SYSTEM (TSMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Traffic Signs					
1.1	Inventory (new assets)	20 000	No.			
1.2	Condition Assessment	250 000	No.			
Carry total forward to Summary of Pricing Schedule Section B2						

SECTION B3: STRUCTURE MANAGEMENT SYSTEM (BMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Structures					
1.1	Verify and Update Inventory	650	No.			
1.2	New Inventory - Tunnel	1	No.			
1.3	New Inventory - Bridges	10	No.			
1.4	New Inventory - Gantries and Retaining Walls	10	No.			
1.5	Condition Assessment					
1.5.1	Bridges	500	No.			
1.5.2	Major Culverts	150	No.			
1.5.3	Daspoort Tunnel 573m long	1	No.			
1.5.4	Gantries and Retaining Walls	40	No.			
Carry total forward to Summary of Pricing Schedule Section B3						

SECTION B4: ROADSIDE INFRASTRUCTURE MANAGEMENT SYSTEM (RIMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Roadside Infrastructure					
1.1	Inventory					
1.1.1	Bollards	2 000	No.			
1.1.2	Walkways & Cycle Lanes	1 000	km			
1.1.3	Kerbing	10 000	km			
1.1.4	Guardrails	50 000	m			
1.1.5	Fencing	50 000	m			
1.2.6	Ancillary assets e.g. traffic calming, bus shelter	1 000	No			
1.2	Condition Assessment					
1.2.1	Bollards	2 000	No.			
1.2.3	Walkways & Cycle Lanes	1 000	km			
1.2.4	Kerbing	10 000	km			
1.2.5	Guardrails	50 000	m			
1.2.6	Fencing	50 000	m			
1.2.7	Ancillary assets e.g. traffic calming, bus shelters	1 000	No.			
Carry total forward to Summary of Pricing Schedule Section B4						

SECTION B5: STORMWATER MANAGEMENT SYSTEM (SMS)

Item	Description	Quantity	Unit	Rate	Price (Excl. Vat)	
1	Stormwater Infrastructure					
1.1	Inventory					
1.1.1	Pipe culverts	500	km			
1.1.2	Portal culverts	10	km			
1.1.3	Stormwater inlets (kerb inlet, field inlet, grid inlet)	20 000	No.			
1.1.4	Lined channels	100	km			
1.1.5	Unlined Channels	10	km			
1.1.6	Rivers and streams	500	km			
1.1.7	Stormwater outlets	500	No.			
1.2	Condition Assessment					
1.2.1	Pipe culverts	500	km			
1.2.2	Portal culverts	10	km			
1.2.3	Stormwater inlets (kerb inlet, field inlet, grid inlet)	45 000	No.			
1.2.4	Lined channels	170	km			
1.2.5	Unlined Channels	10	km			
1.2.6	Rivers and streams	500	km			
1.2.7	Stormwater outlets	500	No.			
Carry total forward to Summary of Pricing Schedule Section B5						

C2.3 SUMMARY OF PRICING SCHEDULE

SECTION A: LEAD CONSULTANT

Section	Description	Price (Excl. VAT)	
A1	Pavement Management System	R	
A2	Traffic Signs Management System	R	
A3	Structure Management System	R	
A4	Roadside Infrastructure Management System	R	
A5	Stormwater Management System	R	
A6	Time base fees	R	
	Sub total	R	
	VAT (15%)	R	
	Section A Lead Consultant – Total (Carry to C1.1 Form of Offer)	R	

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

SECTION B: ASSESSMENT CONSULTANT

SECTION B1: PAVEMENT MANAGEMENT SYSTEM (PMS)

Section	Description	Price (Excl. VAT)	
B1	PMS Assessment Consultant	R	
	VAT (15%)	R	
	Section B1 PMS Assessment Consultant – Total (Carry to C1.1 Form of Offer)	R	

SECTION B2: TRAFFIC SIGNS MANAGEMENT SYSTEM (TSMS)

Section	Description	Price (Excl. VAT)	
B2	TSMS Assessment Consultant	R	
	VAT (15%)	R	
	Section B2 TSMS Assessment Consultant – Total (Carry to C1.1 Form of Offer)	R	

SECTION B3: STRUCTURE MANAGEMENT SYSTEM (BMS)

Section	Description	Price (Excl. VAT)	
B3	BMS Assessment Consultant	R	
	VAT (15%)	R	
	Section B3 BMS Assessment Consultant – Total (Carry to C1.1 Form of Offer)	R	

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

SECTION B4: ROADSIDE INFRASTRUCTURE MANAGEMENT SYSTEM (RIMS)

Section	Description	Price (Excl. VAT)	
B4	RIMS Assessment Consultant	R	
	VAT (15%)	R	
	Section B4 BMS Assessment Consultant – Total (Carry to C1.1 Form of Offer)	R	

SECTION B5: STORMWATER MANAGEMENT SYSTEM (SMS)

Section	Description	Price (Excl. VAT)	
B5	SMS Assessment Consultant	R	
	VAT (15%)	R	
	Section B5 SMS Assessment Consultant – Total (Carry to C1.1 Form of Offer)	R	

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person authorized to sign the tender:

Full name (in BLOCK letters): _____

Signature: _____

Date: _____

PART C3: SCOPE OF WORK

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C3.1 SCOPE

BRIEF

Experienced and competent Civil Engineering Consultants are invited to submit bids to render Professional Services as a;

a. Lead Consultant

- To provide cloud-based system for Pavement Management System (PMS), Traffic Sign Management System (TMS), Structure Management System (BMS), Roadside Infrastructure Management System (RIMS) and Stormwater Management System (SMS).
- The client seeks GIS capabilities for specialized civil engineering purposes (view attributes, images, video footprints, map themes, reports, location, conditions, and maintenance work of assets); the maintenance of civil engineering datasets (includes the PMS, URMS, TSMS, BMS, RIMS and SMS); and to enable access to users (on and off-site) via an external spatially enabled cloud web-based Roads and Stormwater Infrastructure GIS solution.
- To provide fully integrated cloud-based Roads and Stormwater Infrastructure assessment system to comply with the GIS Strategy of the City of Tshwane and ensure that all geospatial data captured and maintained (including web map services and layer files) is hosted on the Corporate GIS Data Warehouse of the City in accordance with the "Geospatial Data Standardisation Guidelines" (Annexure A)".
- To process assessment data to compute infrastructure condition and generate reports.
- To undertake control assessments through 10% sampling of assessments done to verify quality of work done by the Assessing Consulting Firms.
- To conduct unbundling and componentisation of different Roads and stormwater infrastructure assets in line with GRAP17.
- To conduct GRAP 17 Roads and Stormwater Infrastructure annual asset verification through GRAP packs.
- To provide Roads Asset Management System (RAMS) annual software licencing, hosting and maintenance services.
- To conduct COT historic data integration with Roads Asset Management System (RAMS) provided.
- The service provider shall utilise the city's basemap and other related standard corporate GIS web map services for map viewers, dashboards and web map apps.
- To undertake training to COT employees on Power User functionality of RAMS provided (Power Users should have administrative rights to edit and update data).
- To undertake training to Assessing Consulting Firms on assessing module functionality, the calibration of Assessment Consultant will form part of the training.
- The lead consultant will provide the assessment consultants with the software application for mobile devices. Software should be compatible with Android 9 and IOS 14 devices.
- Undertake Unbundling and componentisation of Roads and Stormwater assets in line with the respective adopted data dictionaries.
- Undertake annual Fixed Asset Register GRAP 17 Asset Verification through the designed and adopted GRAP packs which includes but no limited to impairments, Expected Useful Life and Remaining Useful Review, Net Book Value Review, etc.
- Develop roads, stormwater and related infrastructure Asset Management Strategy in line with CoT Asset Management Policy.
- Undertake Stormwater pipe mapping based on stormwater inlet's location for comparison with GIS information.
- Appointed service provider must provide any amendments and/or value add to internal data maintenance to the department.

b. Assessment Consultant

- To capture new Roads and Stormwater Infrastructure inventory on mobile device application in line with defined fields.
- Conduct Roads and Stormwater Infrastructure assessment through the mobile device application and upload electronically.
- The assessment consultant will be responsible to provide mobile hardware devices for the capturing of data on the cloud system with the minimum requirements of:

MINIMUM HANDHELD DEVICE SPECIFICATIONS

(No separate payment will be made for the handheld device as well as the data usage)

CPU: Octa-Core (4x 2.3 GHz, 4x 1.7 GHz) or M1 chip 8 core CPU

Display Size: 9-13 inch.

Display Resolution: ~2000x1200 pixels.

RAM: 4 GB.

Storage/ROM: 64 GB.

Rear Camera: Minimum 8MP or higher

Location: Minimum GPS (not A-GPS), Recommended at least 3 of GPS, GLONASS, Galileo, BDS (BeiDou)

Wi-Fi: Required

LTE: Required with Data

Android 9 or iOS14: Required

Service Level Agreement (SLA) will be entered into between COT and all appointed Consultants prior to commencement of the project.

Key characteristics of the proposed appointments are as follows:

Should the appointed Lead Consultant and Assessment Consultant be different companies then the Lead Consultant shall resume the following responsibilities in managing the work of the Assessment Consultant:

- a. A company appointed as a Lead Consultant will act as project managers overseeing the work of the assessing consultants conducting visual assessments as follows;
 - Coordinate, monitor and review the work of the assessing consultants;
 - Arrange assessing consultants team meetings and plan work stages;
 - Prepare programs and progress reports;
 - Seek instructions from and advise the client as and when requested;
 - Evaluate the assessing consultants quality of the work and provide training when and where necessary;
 - Develop relevant templates for ease of data collection, linking, migration and reporting; and
 - Coordinate, maintain uniformity and consistency among all assessing of the project.

- b. The Assessment Consultant (s) shall conduct field work of assessing different road and stormwater infrastructure assets as per the relevant technical scope of works then consolidate their work to report to the lead consultant.

Bidders are allowed to bid for either Lead Consultant or Assessing Consultant or both.

This tender is to provide a fully functional system, implementation and operation of a GIS linked roads and stormwater infrastructure management system that provide Interactive maps & layers, which can be used through the ESRI ArcGIS suite of software products (the standardised City of Tshwane's GIS software. Tshwane does have licences for ESRI ArcGIS available for Council employees only.) within the CoT with effect from appointment.

C 3.2 THE CLOUD-BASED SYSTEM FUNCTIONALITY

RAMS Area	Element	Criteria
13. Accessibility	1.1 Web/Mobile based	<p>The RAMS shall be fully web-based to facilitate a client-agnostic environment. The web portal must provide access to RAMS users, whether they are internal or external, to the system's information and functions under predefined access privileges.</p> <p>Both the management system and the mobile data collection application should be device agnostic and can be accessed via the web and an Android operating system.</p> <p>The system shall be secure to protect the integrity of the data and POPIA compliant.</p> <p>The system shall provide a search function allowing users to search features such as roads to be selected by road name, road number, ward or other pre-defined attributes or interactively selecting it on a map interface.</p>
	1.2 User Access control	User access rights are to be defined by the user access credentials for example a district official can see all the assets contained within the district boundaries, a municipal official can only see data related to their specific municipality, specific purpose users can be set up to only have access to specific reports.
	1.3 Mobile data collection	<p>An interactive mobile data collection application is to be developed according to the new TMH9 requirements, including best practice engineering principles for prioritisation of maintenance and rehabilitation projects. The data collection application should seamlessly interface with the RAMS with minimal to no data quality control needed outside of the system. The application should facilitate live tracking of data collection, quality control protocols, off-line data collection as well as functions to ensure that no duplicate inspections or missing inspections occur. The mobile application should aim to collect data on all road infrastructure including structures, signage, and other ancillary assets (road inventory).</p> <p>The mobile application must capture surface distress ratings, which should include, as the minimum, longitudinal, transverse, alligator cracking, rutting, edge cracking, drainage problem, block cracking, patching, potholes, and roughness.</p>
	1.4 Spatial capabilities	The system shall allow the generating of summary reports by Road or Area (such as Municipality, Region, Ward, Suburb, and Maintenance Areas).
14. Geographic Information System (GIS) capabilities	2.1 Map Viewer	<p>Provide Interactive maps & layers, which can be used through the ESRI ArcGIS suite of software products (the standardised City of Tshwane's GIS software). The solution shall provide integration between ESRI ArcGIS and Pavement and Road database/s.</p> <p>The service provider shall utilise the city's basemap and other related standard corporate GIS web map services for map viewers, dashboards and web map apps</p> <p>Spatially enabled cloud application to distribute the captured road pavement condition information, road maintenance priority lists and work schedules on a secure internet environment.</p> <p>The viewer shall allow users to view various attributes/properties of the selected asset.</p> <p>The viewer shall allow users to view images, video footprints, and road/street views.</p>
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RAMS Area	Element	Criteria
		<p>Map themes should be user-definable, allow search, pan, and print functions. The interface shall allow other systems to request images by location, road name or an address etc., and access all collected information using a user-friendly interface.</p> <p>Spatial Location of proposed maintenance works by type of action should be provided as a map theme.</p> <p>The system shall include the ability to create maps showing pavement condition and repair decisions.</p> <p>The system must allow users to select a road in the GIS map to view the corresponding captured right of way images.</p>
15. Inventory	3.1 Network	<p>Road Network definition according to the latest TRH26.</p> <p>All structures classified according to TMH19 guidelines.</p> <p>Traffic signs classified according to SADC - SARTSM Vol 1.</p> <p>GRAP 17 fixed asset register must be prepared.</p>
	3.2 Asset, Component, Item	<p>The roads should be divided into the different asset types, their components, and items.</p> <p>Provide complete road log per defined road section.</p>
	3.3 GIS	<p>Integrated Roads and Stormwater Infrastructure GIS Map viewer depicting each asset, their detail and location on various interactive map themes should be present.</p>
16. Valuation	4.1 Extent	<p>Visually extent/size of each asset to be defined.</p>
17. Usage and Condition	5.1 Road Visuals (UPMS & PMS)	<p>Keep a record of past and present defects in compliance with the latest Department of Transport TMH9 road condition data standard.</p> <p>The system must allow interactive pavement condition rating input including the type of distress, severity, and extent</p> <p>Make provision for socio-economic factors like built-up areas for consideration during maintenance prioritization.</p>
	5.2 Traffic	<p>Manual Traffic count import function to be developed.</p>
	5.3 Structures (BMS)	<p>Both inventory and deterioration, extent, risk & urgency condition inspection data.</p> <p>Complies with the asset classification and condition inspection guidelines set forth by TMH19.</p>
	5.4 Ancillary Assets (TSMS, RIMS & SMS)	<p>Componentization and condition indicators for all other road assets not classified as a road or structure for example kerbs, signs, traffic calming elements, drainage elements, sidewalks, bollards, guardrail, fences etc.</p> <p>Asset value calculation according to GRAP 17.</p>
	5.5 Stormwater (SMS)	<p>Componentization and condition indicators for all stormwater assets not classified as a road or structure for example pipe/portal culverts, stormwater inlets, stormwater outlets, lined channels, unlined channels, rivers, and streams etc.</p>
	5.6 Data Management	<p>Asset value calculation according to GRAP 17.</p>
18. Quality control	6.1 Data Quality	<p>Data quality management process in place to validate the condition data and check accuracy & integrity.</p> <p>Functions to facilitate control assessments on visual assessment data and the assignment of a data quality acceptance index per assessor without the need to facilitate this quality control measure process outside of the system. This will facilitate a direct data comparison functionality.</p>
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RAMS Area	Element	Criteria
19. Decision Support	7.1 Condition Indices	<p>Visual condition indices should be produced using an arithmetic aggregation of distress ratings that are determined following TMH9. This should be calculated for Paved Roads, Unpaved Roads, Structures, and ancillary assets.</p> <p>Functional condition indices should be calculated and based on an appraisal of the asset in terms of functional characteristics that affect the quality of use, notably comfort (convenience) safety, congestion, and operating cost.</p> <p>Structural condition indices should be produced using distresses that manifest in the underlying pavements and can be mitigated by a rehabilitation program. This index should be used to determine the remaining useful life of the road structure for strategic periodic maintenance planning.</p> <p>Surface condition indices should be produced using distresses that manifest in the road surface and can be mitigated by a resurfacing program without the need to rehabilitate the underlying pavement. This index should be used to determine the remaining useful life of the surface for strategic maintenance planning.</p>
	7.2 Identification of treatment	<p>Users should be able to configure decision-making processes as per the repair method to be used for different types of road distress conditions.</p> <p>The system should allow the end-user to configure pavement repair methods based on the extent and severity rating of the deficiency type.</p> <p>The system should produce maintenance and rehabilitation actions for each asset with expected cost based on pre-defined unit rates.</p> <p>The system should allow users to override the pavement repair method or priority based on the pavement engineer's experience and/or considering an operational decision.</p> <p>Preventative treatments should be flagged on a list where distress is not yet evident but due to dry and brittle surfacing, listed segments may benefit from diluted emulsion to prevent them from featuring on the resurfacing program.</p>
	7.3 Prioritizing	<p>The condition, urgency and type of maintenance ratings given in the detailed outputs are to be used for preparing maintenance programs in which projects/links are listed according to priority.</p> <p>The system must allow the user to define decision rules for maintenance and construction activities.</p> <p>The system should be able to prioritize the repair work based on parameters such as traffic volume and road condition. Resurfacing projects/links (including asphalt overlays) are to be listed in priority order and divided into those considered necessary the current year, followed by those that should be done the following year. If the budget is insufficient for accommodating all the recommended projects, a cumulative total should provide a ready means for matching the most urgent projects to the available funds.</p> <p>Preliminary reconstruction program that gives tentative recommendations for rehabilitation programming. The estimated cost implications for individual projects/links, as well as the cumulative costs, should be given.</p> <p>The maintenance needs for gravel roads (regravel and/or drainage) listed in order of priority with the unpaved network, divided into regraveling, gravel (upgrade dirt to gravel), drainage and paving needs.</p>
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RAMS Area	Element	Criteria
		<p>The system must provide Maintenance Efficiency Trends.</p> <p>Optimisation by mathematical programming model for the year-by-year basis should be developed.</p>
	7.4 Detailed outputs	<p>The results of the model are to be given for every section of the road in a quantitative report. Apart from numerical assessments, road sections are to be rated on a qualitative scale from very good to very poor for each of:</p> <ul style="list-style-type: none"> • the surfacing condition; • the structure condition; • the functional condition; • the overall condition. <p>The results are therefore to be presented in a variety of summarized forms to assist management:</p> <ol style="list-style-type: none"> 1. A map showing areas requiring attention; 2. A series of histograms giving the distribution of pavement properties for selected sets of pavements; 3. Listings of required surface treatments and rehabilitation projects (with associated costs) in order of priority for use in maintenance programming and budgeting; 4. A series of bar charts giving the area of each type of recommended surfacing; 5. A series of pie charts giving a qualitative indication of the structural and surfacing condition.
	7.5 Depreciation	<p>Remaining useful life should be calculated on all major asset components like, road surface, road structure, ancillary assets etc. using the expected useful life, determination factors and current condition.</p>
	7.6 Project confirmation	<p>Functions available for panel/ inspections (refer to quality control)</p> <p>Decision-Making Tools for Cost / Benefit (or) Life Cycle Cost Analysis.</p>
20. Management Plans	8.1 Plan	<p>Decision Making Tools for optimisation of Routine, Preventive Maintenance, Deferred Maintenance, Rehabilitation and Reconstruction works.</p> <p>The software should provide the ability to produce different repair reports and budget reports based on priorities including road classifications and roadway conditions.</p> <p>The routine maintenance program, a list showing which links need routine maintenance (patching, crack sealing, etc.)</p>
	8.2 Strategy	<p>Backlog calculation and reporting.</p> <p>Identification and prioritisation of the upgrade of dirt roads to gravel standards and gravel roads to paved standards considering the traffic volumes recorded.</p>
	8.3 Financial	<p>Budget Report per Region</p> <p>The system should provide a repair cost based on a user-definable unit cost for each repair method and must provide the ability to alter unit costs and inflation factors for maintenance or construction cost analysis.</p> <p>The system should be able to calculate the repair cost based on the selected repair method and present a cost analysis.</p>
		<p>Decision-Making Tools to produce road maintenance and rehabilitation budgets.</p>
<p>Copyright © 2010, 2011, 2012, 2013 City of Tshwane</p>		<p>maintainance with the CIDB Standard for Uniformity</p>

RAMS Area	Element	Criteria
21. Feedback	9.1 Asset verification	<p>Reports flagging road segments not inspected during a survey with a reason to allow the City to analyse whether these road segments should be removed from the asset register or to plan for future mitigation factors to facilitate the condition inspections going forward.</p> <p>Reports flagging all ancillary assets not inspected during a survey with a reason to allow the district to analyse whether these assets should be removed from the asset register or to plan for future mitigation factors to facilitate the condition inspection for example missing traffic signs.</p>
22. Modularity	10.1 High-Level Management Dashboard	The dashboards are expected to be user-definable and shall be able to display summary information such as condition, inventory, traffic, projects, road asset value etc.
	10.2 Mobile data collection application	All condition surveys and inventory i.e. both for roads and structures will be facilitated using tablets with a mobile data collection application. This data collection application will record all types of defects with quantities.
	10.3 Spatial Relational Roads Database	The RAMS database should be a relational database, which in essence can be described as a tabular database in which logical relationships between records are represented in the design and strictly governed. Single source of data supply ensures accuracy, consistency and integrity in systems and services that reference and consume data.
	10.4 Road Location Referencing System/ Geographic Information System (GIS)	<p>This is a critical component of the overall system. This sub-system is to be GIS (ArcGIS) linked/synchronized and will contain essential inventory data such as road logs, with roads broken down into links and segments. The links are described road category, start and end descriptions and distance, road width, surface type, street names etc. The Roads and Stormwater Infrastructure GIS will also be used to display information from the other support sub-systems.</p> <p>All roads should be dual referenced in that it contains a chainage reference (km) as well as full GPS references. The database should cater for national, provincial, rural, feeder, urban and farm roads which could be incorporated into the system as the system expands.</p>

RAMS Area	Element	Criteria
	10.5 Paved Road Management System (PMS)	<p>The PMS should include various data viewing, data capture and reporting modules for all visual and other pavement data collected on flexible surfaced, concrete surfaced and block paved roads.</p> <p>The PMS should include a data capture and verification module for the “post rating” of visual assessment data acquired by surveillance equipment and, also, a module to do deterioration modelling, undertake prioritization and optimization analysis together with the development of works programmes and multi-year budgets are required. Should the analysis module not be an integral facet of the PMS, the system must be capable of generating data that can be exported to proprietary analysis software such as HDM4.</p> <p>The PMS should contain all the necessary functions to undertake management analyses at strategic, programming, and operational levels for all or part of the core road network. Minimum outputs should include:</p> <ol style="list-style-type: none"> 1. Route classification (network definition) 2. Standard assessment form (paved) 3. Detailed condition assessment 4. Detail output explanation 5. Condition maps 6. Summarised condition assessment - histograms 7. Summarised condition assessment - pie charts 8. Periodic -, scheduled -, Diluted emulsion maintenance programmes 9. Routine maintenance programme 10. Resurfacing summary 11. Segmented Block Paving 12. Jointed Concrete Pavements 13. Performance predictions 14. Maintenance Efficiency Trends <p>Outputs should be focused on identification, quantification, prioritisation, and budgeting.</p>

RAMS Area	Element	Criteria
	10.6 Unpaved Road Management System (URMS)	<p>The unpaved road management system is a suite of application programs for analysing and modelling the condition of the unsurfaced road. The Management Systems provide condition information as well as routine maintenance priorities. Road segments requiring maintenance are highlighted whilst identifying appropriate maintenance measures, reporting on the condition of gravel pavements, and presenting the results in a variety of formats and combinations for different levels of management.</p> <p>The URMS must include at least the following:</p> <ol style="list-style-type: none"> 1. Data processing and analysis including the derivation of condition indices 2. Analysis of maintenance and upgrading needs 3. Automatic mechanism for the assignment of maintenance options 4. Integrated design method of upgrading options 5. Prediction of gravel deterioration and gravel (or earth) loss 6. Optimization and prioritization of maintenance options 7. Monitor unpaved road networks 8. Analyse & model the condition of road segments 9. Communicate regravelling & maintenance needs 10. Address Absent & Insufficient Drainage 11. Link Money Values to provide Optimised Budgets 12. Identify suitable roads for the upgrade to paved roads 13. Process for estimating the value of road assets 14. Generation of reports, graphs, and maps <p>Outputs should be focused on identification, quantification, prioritisation, and budgeting.</p>
	10.7 Structure Management Systems (BMS)	<p>It must be capable of producing statistics on the structure inventory, condition, deterioration trends and priorities together with generating structure maintenance schedules and multi-year budgets.</p>
	10.8 Traffic Management System	<p>The RAMS shall include a system dedicated to traffic counting and management, it shall be able to store information from traffic counts and axle weighing measurements and be able to derive traffic indicators such as the AADT, traffic growth rates, axle loads and vehicle damage factors of the various types of vehicles using labour-intensive data collection methods. The system shall be able to accommodate straight line manual traffic counts as well as intersection counts to illustrate prevailing turn actions.</p> <p>Minimum functionality should include:</p> <ol style="list-style-type: none"> 1. Traffic modelling results visualization, traffic counts 2. Detailed geometric intersection layout module 3. Full integration between PMS, URMS, TSMS, BMS, RIMS and SMS

RAMS Area	Element	Criteria
	10.9 Traffic Signage Information System (TSMS)	<p>Includes functionality to assist in managing traffic signs</p> <p>Key Features include:</p> <ol style="list-style-type: none"> 1. Instant Process Tracking 2. Strategic, Tactical & Operational level outputs 3. Component Location Reference 4. Asset Photo Library 5. Basic Inventory Statistics 6. Condition Description 7. Priority Maintenance Activities 8. Budget and Asset Cost Estimation 9. Flag missing sign plates, poor visibility, or improper use of traffic signs to aid road safety.
	10.10 Roadside infrastructure management system (RIMS)	<p>Includes functionality to assist in managing data within the right of way or what is sometimes referred to as the road reserve. This includes aspects such as off-carriageway features and furnishings, traffic calming elements, surfaced car parks adjacent to roads/streets, footways, accesses, and wayside amenities.</p> <p>Key Features include:</p> <ol style="list-style-type: none"> 1. Instant Process Tracking 2. Strategic, Tactical & Operational level outputs 3. Component Location Reference 4. Asset Photo Library 5. Basic Inventory Statistics 6. Condition Description 7. Priority Maintenance Activities 8. Budget and Asset Cost Estimation
	10.11 Stormwater management system	<p>Includes functionality to assist in managing data within the stormwater management system and should include the following elements but not limited to: inlet structures, outlet structures, manholes, junction boxes, pipe/box culverts, lined channels and unlined channels.</p> <p>Key Features include:</p> <ol style="list-style-type: none"> 1. Instant Process Tracking 2. Strategic, Tactical & Operational level outputs 3. Component Location Reference 4. Asset Photo Library 5. Basic Inventory Statistics 6. Condition Description 7. Priority Maintenance Activities 8. Budget and Asset Cost Estimation 9. Functionality of component 10. As-built data incorporation
23. Data sharing	11.1 Tools	<p>Compliance with the latest Department of Transport TMH-18 asset reporting standards for the annual provision of road data to CoT. Provide for the Import & Export of data specifically for (but not limited to) the TMH18 formats</p>
	11.2 Charts & Reports	<p>Compliance with the latest Department of Transport TMH-22 road asset deterioration and maintenance guidelines</p> <p>Should be filterable, searchable, printable and exportable in various file formats</p>

RAMS Area	Element	Criteria
		<p>Typical Standard reports are used for providing standard information in a predefined format. For example, print a road log of all roads in a region.</p> <p>Exceptional reports are automatically produced by the system whenever a certain condition is matched, as defined by the user. For example, print all approved bridge projects which are outstanding with a maintenance priority of one (1).</p> <p>Ad-hoc reports that the user can select at any time. This also includes the report types as described above. The user can select from pre-defined criteria before printing a report whilst selecting from and to date, summarised or detailed, specific region or total network.</p>
	11.3 Visualization Tools	<p>Comprehensive dashboard that provides a quick overview of assets, reporting components and integrated GIS interface.</p> <p>The tools must allow users to view the raw as well as processed final data to be queried and viewed in a GIS integrated environment.</p> <p>These dashboards should be exportable for use in drafting reports.</p>
	11.4 GIS Data Warehouse	<p>The data custodian department and appointed service providers to comply with the GIS Strategy of the City of Tshwane and ensure that all geospatial data (including web map services and layer files) is hosted on the Corporate GIS Data Warehouse of the City in accordance with the "Geospatial Data Standardisation Guidelines" (Annexure A)</p>
24. Licencing		<p>Can accommodate multi-usability with an unlimited licence. Provision must be made for at least 20 power/super users, 10 Administrative users and 20 query users.</p>

C 3.3 DATA TO BE PROVIDED TO THE FINANCIAL ASSET REGISTER

Detail pertaining to each asset class, each asset sub-category, each asset group, each asset, and each asset component should be provided in the agreed format for the Asset Register Module. Note that data and information from the road sub-systems must be collated to provide comprehensive asset information. The asset register format will be agreed upon project inception but should at least include the following fields:

- Asset Number
- Asset Class
- Asset Sub-Category
- Asset Group
- Condition Grading
- Criticality
- Performance
- Utilisation
- Year Constructed
- Year renewed
- Expected Useful Life (EUL)
- Remaining Useful Life (RUL)
- Current Replacement Cost (CRC)
- Depreciated Replacement Cost (DRC)
- Spatial Reference (Unique GIS Link ID to be agreed upon project inception)
- Confidence Grade
- Impairments

C3.4 REPORTING

(i) Generally Recognized Accounting Practice (GRAP 17) Report:

The report should address the existing asset register for structures and componentized as per TMH19 recommendation.

(ii) GRAP 17 Structure asset verification report

The report should provide confirmation of asset verification in terms of GRAP17 requirements, e.g. asset location, condition, combo ID, remaining useful life and quantity per component

(iii) GRAP 17 performance report

The report should provide information on maintenance work carried out on the system over the three financial years.

C3.5 PERFORMANCE

- (a) Progress reports (monthly)
- (b) Progress meetings (quarterly)
- (c) Electronically preliminary annual report (January of each year)
- (d) Electronic GRAP 17 reports (April each year)
- (e) Electronic/hardcopies final annual report (February of each year)
- (f) Response time to queries including audit queries (2 working days)

C3.6 DEFAULTS

The contract shall be managed in line with the relevant New Engineering Contract (NEC) and notwithstanding such, should it appear to the Group Head that the Consultant is not executing the contract in accordance with the true intent and meaning thereof, or that he is refusing or delaying to execute the contract or that he is not carrying on the contract at such rate of progress as to ensure delivery by the date of delivery or that the time has expired within which delivery should have taken place or in the event of any other failure or default by the Consultant, then in any of such events the Department may give notice in writing to the Consultant to make good the failure or default, and should the consultant fail to comply with the notice within the period specified therein, then in such case the Group Head shall, without prejudice to any of the Council's rights under the contract, be at liberty forthwith to perform such service as the consultant may have neglected to do, or take the contract wholly or in part out of the Consultant's hands and order from or contract with any other person. The Consultant shall be responsible for any loss the Council may sustain by reason of such action as may be taken in terms of this clause.

Spot checks shall be taken from time to time to detect any discrepancies or variations of the captured data and to evaluate the accuracy of the outputs from all systems. Inaccurate or incorrect work shall be rectified by the Consultant at his own cost.

C3.7 PENALTIES FOR NON PERFORMANCE

Conformance with agreed target dates and deadlines are important in terms of effective governance of the Municipality. Therefore, penalties will be instilled for non-performance by withholding of payments until work is sufficiently completed and required reports submitted. A penalty of R2 000 per day will be applied for each day delay after the agreed submission date.

C3.8 TRAFFIC CONTROL

a) General Requirements

- Traffic accommodation should be in line with the South African Road Traffic Signs Manual Volume 2, Chapter 13.
- The consultant's activities on the road should have a minimum effect on the normal flow of traffic during the execution of the work.
- During the execution of the work the consultant shall be responsible for the safe and easy passage of vehicular and pedestrian traffic.

(b) Warning devices, signs etc.:

- All vehicles utilized by the evaluators shall be equipped with the necessary notices and warning devices.

(c) Language

- Traffic signs and notices shall be in English.

C3.9 WORKING HOURS

None of the work shall be executed on main routes during peak hours, before 09h00 and after 15h00.

SECTION A: PAVEMENT MANAGEMENT SYSTEM (PMS)

CA3.1 EMPLOYER'S OBJECTIVES

The provision, implementation and operating of a Roads and Stormwater Infrastructure GIS linked pavement management system for all roads for the City of Tshwane: 3 year period

The compilation of pavement management system data followed by the processing of collected data to produce information that would support management during their budgeting process as well as maintenance personnel during the implementation of maintenance activities.

CA3.2 BACKGROUND

The Pavement Management System, based on TRH20, TRH22, TMH9 and TMH11 should include all surfaced and unpaved roads in the CoT and must be linked to the GIS system. The tender should be based on approximately 7 000km of surfaced roads and 3 200km of unpaved roads.

The results of the proposed Pavement Management System should be compatible with the outputs of the Pavement Management System currently in use. Otherwise an algorithm should be developed to make the results of the new system and the current system comparable.

By using the CoT corporate supported road referencing system (RRS), the base-level integration should be done on a database level. The scope of this project dictates that the independently created databases, such as the PMS, be integrated into one logical coherent relational database. The PMS must form part of the integrated management system.

The database integration of applications can be done in various ways. The consultant should note how the proposed system will address the following criteria:

CA3.3 SPECIFICATION

MANAGEMENT / OVERSIGHT STRUCTURES FOR THE PROJECT

CA3.3.1 DATA COLLECTION

CA3.3.1.1 Network definition

The existing road referencing system should be used, verified and updated where necessary. The network should be divided into links by systematic allocating nodes. Nodes should be fixed points and are assigned to:

- (i) Road intersections
- (ii) Intersection of roads with boundaries
- (iii) Change from a paved to an unpaved road etc.
- (iv) Name change of a road

Links are identified by the name of the road concerned and the names of intersecting roads or other features used as nodes. Where street names do not exist they should be numbered in accordance with existing practises applied in the City of Tshwane.

For primary roads all road links should be subdivided into segments where each segment represents a lane with the same length.

CA3.3.1.2 Network characterisation

A number of semi-permanent characteristics of the road are used in the analysis and should therefore be determined for each section. These characteristics are:

(a) Geometry

The length and width of each section are necessary to determine the surface areas of the maintenance projects and of the road network.

(b) Functional class and traffic

The functional route classification (primary, secondary, main tertiary and tertiary) and the volume and type of traffic (light, medium, and heavy) should be done of each road. The proportion of the various classes of roads in an area must be given by means of pie charts as well as maps indicating the classification of the roads within the network.

CA3.3.1.3 Pavement condition (Visual assessment) of unpaved roads

Data sets:

a) Fixed information

- This includes information such as road name, start and end position, length, width and road type.
- Traffic counts are very costly, and three categories have been resorted to, based on vehicles encountered on the section during evaluation. Very light is considered as <25 vehicles per day (v.p.d.), medium from 50 to 130 v.p.d. and very heavy >300 v.p.d.

Terrain is designated as flat, rolling or mountainous, according to broad guidelines.

- The moisture regime at the time of evaluation is important as it can accentuate or mask certain types of deterioration and is used where significant differences with previous assessments are encountered.
- Finally, a distinction is made between a gravel road and a non-engineered dirt road, as the latter would normally receive no additional gravel, and “none” where only the road reserve exists.

b) Structural assessment

The structural assessment is related to the ability of the pavement to carry the traffic load. Although there may be arguments about the inclusion of other aspects, or the exclusion of some of the evaluated factors, the process should be aimed at identifying structural needs such as re-gravelling, ripping and re-compaction, reshaping or special blading. The way in which the visual assessment is conducted, requires the use of technicians skilled in materials and the maintenance of gravel roads. Assessments should not be done while there is water on the surface.

All the aspects should be assessed in terms of degree/severity and extent. Three anchor values are used to define degree/severity, namely:

1. Visually noticeable, but still minor, usually isolated.
2. Needs attention, but not urgent.
3. Needs urgent attention.

The extent should also be given on a five-point scale with the following anchor values:

- “1” Isolated occurrence, not representative of the segment length being evaluated. (Seldom)
- “3” Intermittent occurrence, over most of the segment length.
- “5” Extensive occurrence.
- “2” or “4” are noted if the assessment is intermediate to the above anchor values, either.
- “0” (Zero) is noted if no defects are noticed without giving an extent.

c) Gravel properties

The detailed testing of the gravel material of the complete networks would be prohibitive. Initially the most important characteristics should be evaluated visually, namely type of gravel, maximum size, type of grading and plasticity index. As part of the gravel management programme, the available sources will be tested during regravelling and the database updated. The maintenance strategy selected is not sensitive to small variations in material properties and this approach gives a working solution for the network level recommendations. For long term planning of regravelling, the more accurate data will yield more reliable predicted gravel loss.

(d) Functional assessment

The functional assessment evaluates the service which the road provides to the user.

- Riding quality is assessed by driving over the section, and the qualitative descriptors are linked to roughness measurements.
- Skid resistance on unpaved roads is difficult to measure, particularly since it is unlikely that, at the time of measurement, the worst conditions are encountered.
- Comments from the maintenance staff or local users about skidding during wet conditions are used to flag a potential problem material.

CA3.3.1.4 Pavement condition of surfaced roads

The rating of condition is made according to strict rules (TMH 9) by completing the appropriate evaluation forms which should be divided into ratings of:

- the functional condition

The condition of the surfacing relates to its quality as a suitable riding surface for traffic and as an impermeable layer preventing ingress of water into the pavement structure.

The condition of the structure relates to its ability to withstand traffic loads.

The functional condition is a measure of the level of service currently provided by the pavement to the road used.

CA3.4 OUTPUTS NEEDED

CA3.4.1 Outputs generated by the Unpaved Road Management System:

CA3.4.1.1 Detailed printouts of the processed information should be given for each township and ward, per region, for every section/link in alphabetic order of street names. The results must be presented in the following summarised formats:

- a) Maps showing areas requiring attention
- b) A series of pie charts giving a qualitative indication of the condition
- c) Listing of the required maintenance needs (with associated costs) in order of priority
- d) A series of bar charts giving the length and type of maintenance recommended
- e) Fixed asset register linked report
- f) Maintenance performance report

CA3.4.1.2 Condition maps

Road maps of the area on which roads are highlighted according to their condition to give a direct visual indication of where attention is required on the network.

CA3.4.1.3 Summarised condition assessment (Pie charts)

The distribution of the condition of the roads for various sets of data must be shown in the form of pie charts.

CA3.4.1.4 Gravel thickness

Histograms indicating the distribution of gravel thickness and trends as a result of loss and regravelling for each area, each road category, and for the network as a whole. The average gravel thickness for each area must be plotted as an arrow on a horizontal axis of gravel thickness from 0 to 150mm.

CA3.4.1.5 Priority listings

The urgency and type of maintenance should be used to prepare three types of programmes in which projects are listed according to priority namely:

- (a) Maintenance needs for the network: A summary of the total maintenance for the unpaved network, divided into re-gravelling, gravel (upgrade dirt to gravel) drainage and paving needs. Each of these must be sub-divided into different route classifications with a table giving the length of roads that needs attention and a table giving estimates / budget for each area.

The maintenance needs for gravel roads (regravel and / or drainage) must be listed in order of priority. The cost implication of individual projects must be given as well as the cumulative cost.

- (b) Upgrading priorities e.g. from dirt to gravel standards: As traffic increases roads need to be upgraded from dirt to gravel roads. A priority list of these roads must be given with the cost implication of the individual projects as well as the cumulative cost.
- (c) Upgrading priorities – no roads: In some cases only road reserves exist without any road. These links must be listed.
 - Distribution of recommended maintenance requirements
 - The quantities of the various types of maintenance needs must be shown in a series of bar charts as well as maps indicating the needs.

CA3.4.2 Outputs generated by the Surfaced Road Management System

The results should be given for each township and ward, per region, for every section of road in alphabetic order of street names. Apart from numerical assessments, road sections should be rated on a qualitative scale from very good to very poor for each of:

- (a) The surfacing condition
- (b) The structure condition
- (c) The functional condition
- (d) The overall condition

In addition the recommended type and urgency of maintenance should be given.

The results should be presented in a variety of summarised forms to assist the client:

- (a) A map showing areas requiring attention;
- (b) A series of histograms giving the distribution of pavement properties for selected sets of pavements;
- (c) Listings of required surface treatments and rehabilitation projects (with
- (d) Associated costs) in order of priority for use in maintenance programming and budgeting;
- (e) A series of bar charts giving the area of each type of recommended resurfacing;
- (f) A series of pie charts giving a qualitative indication of the structural and surfacing condition.

CA3.4.3 Maps

Maps of the area should be given on which the roads are highlighted according to their condition.

Separate maps should be given showing the condition of the road surfaces and the condition of the pavement structures. These should give a direct visual indication of where attention is required within the network.

The maps should comply with The City of Tshwane Financial Asset Register input model with reference to condition grading approach.

CA3.4.4 Histograms

Histograms should be prepared that give the distribution and averages of different aspects of condition of particular sets of pavements. These include:

- (a) The surfacing condition;
- (b) The structural condition;
- (c) The defects given rise to condition of the road surfaces and structures;
- (d) The average values of the three condition components (surfacing, structure, and functional condition).

Histograms should be given for the following sets of roads:

- (a) Total network
- (b) Primary routes
- (c) Secondary routes
- (d) Main tertiary routes
- (e) Tertiary routes
- (f) Each of the defined areas

The histograms must indicate:

- (a) Condition of the road surfaces

The condition of the surfacing should be rated as 1. very good, 2. good, 3. fair, 4. poor or 5. very poor. The percentage of the total area in each class, for the set of roads under scrutiny, should be given in the histogram.

- (b) In the same way the distribution of the structural condition of the pavements in the chosen sets of roads should be displayed in the histogram.

- (c) Summary of defects

A summary of the degree and extent of the defects noted, for surfacing and structure, should also be displayed in the histograms.

- (d) Average value of condition components

The average of the condition points allocated to each link by the algorithm for the surfacing, the structure and the service ability (functional condition) should be displayed on each page.

CA3.4.4.1 Main arterials

Histograms should be given for main arterials.

CA3.4.4.2 Charts – surfacing and structures

The distribution of the condition of the surfacing and the structure for the various sets of roads should also be shown in the form of charts, with the same colour code used for the histograms.

CA3.4.4.3 Priority listings

The condition and urgency and type of maintenance ratings given should be listed, showing three types of maintenance required namely:

- (a) Reseal program

Reseal (including asphalt) projects should be divided into those considered necessary for the correct year and followed by those that should be done the following year, and listed in order of priority.

The cost implications of individual projects for the particular financial year should be given, as well as the total cost of a project together with accumulative costs for determining cut off points according to the available budget.

(b) Diluted emulsion program

Diluted emulsion treatments should be listed separately. Treatment of links with diluted emulsion proposed in the reseal program should not be repeated in these lists.

(c) Preliminary reconstruction programme

Tentative recommendations for rehabilitation programming should be presented in two parts. The first part lists rehabilitation projects in order of priority where such action is clearly warranted from existing condition data. The second part lists those projects for which the need for rehabilitation must first be verified by further field investigation.

CA3.4.4.4 Distribution of recommended maintenance requirements

The quantities of the various types of resurfacing recommended for the following two financial years should be shown in a series of bar charts. The particular treatment for each road should be indicated on street maps.

CA3.4.5 Outputs Specific to Asset Management Requirement

CA3.4.5.1 Detailed outputs

Componentised Road Valuation Asset Register

The results should be given per region, for each township and ward, for every section of road in alphabetic order of street names. Apart from numerical assessments, road sections should be rated on a qualitative scale from very good to very poor for each of:

- (a) Road Pavement Surfacing
- (b) Road Pavement Structure

The results should be given for each township and ward, per region, for every section of road in alphabetic order of street names. Apart from numerical assessments, road sections should be rated on a qualitative scale from very good to very poor for each of:

- (e) The surfacing condition
- (f) The structure condition
- (g) The functional condition
- (h) The overall condition

In addition the recommended type and urgency of maintenance should be given.

The results should be presented in a variety of summarised forms to assist the client:

- (g) A map showing areas requiring attention;
- (h) A series of histograms giving the distribution of pavement properties for selected sets of pavements;
- (i) Listings of required surface treatments and rehabilitation projects (with
- (j) Associated costs) in order of priority for use in maintenance programming and budgeting;
- (k) A series of bar charts giving the area of each type of recommended resurfacing;
- (l) A series of pie charts giving a qualitative indication of the structural and surfacing condition.

SECTION B: TRAFFIC SIGNS MANAGEMENT SYSTEM (TSMS)

CB3.1 EMPLOYER'S OBJECTIVES

The provision, implementation and operating of a cloud-based Roads and Stormwater Infrastructure GIS linked Traffic Sign management system for all road signs for the City of Tshwane: 3 year period.

The compilation of sign specific data followed by the processing of collected data to produce information that would support management during their budgeting process as well as maintenance personnel during the implementation of maintenance activities.

CB3.2 SCOPE OF TRAFFIC SIGN MANAGEMENT SYSTEM

BACKGROUND

The Traffic Sign Management System should include all road signs in the CoT and must be linked to the Roads and Stormwater Infrastructure GIS. The tender and visual assessment should be based on the official Road Referencing System (RRS). Evaluation and reporting must be done between January and December of each year.

The proposed Traffic Sign Management System must use the CoT corporate supported Road Referencing System (RRS) with low-level integration on a database level. The scope of this project dictates that the independently created databases, such as the SIS (Signage information / management system), be integrated into one logical coherent relational infrastructure database. Traffic Sign Management information must be available on a 24/7 bases through a cloud reporting portal.

The database integration of applications must be consistent with the official Road Referencing System (RRS). The consultant should highlight how the proposed system will address integration.

CB3.3 SPECIFICATION

MANAGEMENT / OVERSIGHT STRUCTURES FOR THE PROJECT

CB3.3.1 DATA COLLECTION

CB3.3.1.1 Network Definition (Inventory)

Signs should be logged as nodes (fixed points) and coupled to a specific portion of road, using the road reference system for the network as a first step. Dividing the network into sections (or links) by the systematic allocation of nodes. Such nodes must be fixed points and are usually assigned to:

- Road intersections, i.e. where roads cross or join;
- Intersections of roads with boundaries;

Sections should be identified by the name of the road concerned and the names of the intersecting roads or other features used as nodes.

This system should provide the functionality that enables one to:

- (i) Methodically collect relevant data (Visual Assessment of all signs);
- (ii) Capture sign condition and store the data
- (iii) Process the data and produce managerial and maintenance reports.
- (iv) Update of inventory when maintenance is done (i.e. signs replaced)

CB3.3.1.2 Network characterisation

A number of semi-permanent characteristics of the sign are used in the analysis and should therefore be determined for each sign. These characteristics are:

(c) Sign Position

The indication of the signs position in the segment. Left represented by L or Right represented by R. Thereafter, the distance (in meters) the sign is from the shoulder of the road.

(d) Sign Geographical Location

The signs geographical position represented by the GPS coordinates at 1 meter accuracy. This information is obtained from a GPS device. Coordinates are captured in WGS84 DD (Decimal Degree) format.

(e) Sign group, category and name

To ensure that the entire system is centralised and that no external application is required, all generic signs must be read into the system. The system should reference all signs evaluated by an assessor within an internal database. Changes and updates of the signs ought to easily be conducted.

CB3.3.2 Sign condition (Visual assessment) of road signs

Data sets:

a) Fixed information

This includes information such as sign name, according to the South African Traffic Signs Manual, sign position, Height, Photo Nr, Sign Date, Sign Support Material, Sign Support Type, and No. of Supports and sign reflective material.

b) Functional Condition assessment

The structural assessment is related to the ability of the Sign to perform its intended traffic function. This is the overall condition of the sign. The way in which the visual assessment is conducted, requires the use of technicians skilled in sign materials and the maintenance of road signs.

The extent should also be given on a five-point scale:

- Very Good
- Good
- Fair
- Poor
- Very Poor

c) Sign support material and defects assessment

This is an indication of the support's condition.

The extent should also be given on a five-point scale:

- None
- Missing
- Slanted
- Bent

- Rusted

The material types:

- Galvanised
- Metal painted supports
- Wood
- Other

The way in which the visual assessment is conducted, requires the use of technicians skilled in sign support materials and the maintenance of road signs.

(d) Sign support type assessment

This is an indication of the support type's condition.

This is the shape of the support's cross section and the condition thereof. These may be Round, Square or D-Shaped.

The number of supports should also be assessed. This is the number of supporting elements that the sign has. These may be: 1, 2, or more including stays.

The extent of the condition should also be given on a five-point scale:

- Very Good
- Good
- Fair
- Poor
- Very Poor

(d) Sign Message assessment (applicability of traffic sign to site conditions)

The extent of the assessment should be described as:

- Applicable message
- Not applicable message
- Ambiguous or missing message

CB3.4 OUTPUTS REQUIRED

CB3.4.1 Outputs to be generated by the Traffic Sign Management System:

CB3.4.1.1 Inventory based outputs such as number of signs, type allocation

a) maps showing the physical location of each sign

Condition based outputs:

Detailed printouts of the processed information should be given for each township and ward, per region, for every sign in alphabetic order. The results must be presented in the following summarised formats:

- b) a series of charts giving a qualitative indication of the condition
- c) maps showing signs requiring attention
- d) functionality to select a node sign and obtaining inventory, condition information and photographs as well as records of 3rd party maintenance work
- e) listing of the required maintenance needs (with associated costs) in order of priority
- f) a series of charts giving the type of maintenance recommended

CB3.4.1.2 Summarised condition assessment (Charts and Graphs)

The distribution of the condition of the signs for various sets of data must be shown in the form of charts.

The graphs to be generated by the system are:

a. Sign Condition Graph:

This graph should give a pictorial view of the overall condition of the signs in the area as well as the conditions within the Primary, Secondary, Main Tertiary and Tertiary route classes.

b. Suburb & Region Condition Graph:

This graph should give a pictorial view of the sign condition on a scale of very good to very poor per suburb & region. This aids in determining suburbs & regions that require urgent attention thus giving them highest priority.

CB3.4.1.3 Priority listings

The urgency and type of maintenance should be used to prepare three types of programmes in which projects are listed according to priority namely:

- a) Maintenance needs for the network: A summary of the total maintenance for the signs network, divided into functional condition, sign defects and support defects. Each of these must be subdivided into different signs classifications with a table giving the signs that needs attention and a table giving estimates / budget for each area.

The maintenance needs for Traffic Sign's must be listed in order of priority. The cost implication of individual projects must be given as well as the cumulative cost.

- b) Upgrading priorities standards: A priority list of these signs must be given with the cost implication of the individual projects as well as the cumulative cost.
- c) Upgrading priorities – no signs: In some cases only roads exist without any signs. These links must be listed.

CB3.4.1.4 Distribution of recommended maintenance requirements

The quantities of the various types of maintenance needs must be shown in a series of charts as well as maps indicating the needs.

CB3.4.1.5 Reports

The reports generated by the system should be:

(a) Remedial Action Project Costs Summary:

The reports should group all sign types and display the total amount required for maintenance attention. This amount is further broken down and into those that specifically only require the sign board replaced, those that specifically require the support replanted or those that specifically require both the sign board and sign support replaced. Finally, the report should give the total amount required to restore damaged signs (distinction needs to be made between different material reflectivity characteristics based on the sign type.)

(b) Remedial Actions by Route Class:

This summarised report should categorize all signs that need maintenance by route class, by unique sign type and displays the total of all that need maintenance attention. This sum is further broken down into those that specifically only require the sign board replaced, those that specifically require the support replanted or those that specifically require both the sign board and sign support replaced. Finally, the report should give a total figure of the amount of money required to restore damaged signs.

(c) Remedial Actions by Suburb:

This report should categorize all signs requiring maintenance by Suburb then by street and finally by sign types. Each row then has a sum of all sign types within a segment that need maintenance attention. This sum is further broken down and into those that specifically only require the sign board replaced, those that specifically require the support replanted or those that specifically require both the sign board and sign support replaced. Finally, the report should give a total figure of the amount of money required to restore damaged signs.

The report should be detailed enough to get maintenance personnel to a specific sign within a street with expected dilapidations.

(d) Overall Sign Condition:

The report should give a numerical representation of the sign condition on the scale of very good to very poor.

In addition to the above-mentioned reports, a comprehensive ad-hoc query builder and report writer is required to address any additional reporting needs.

CB3.4.1.6 Condition maps

Road maps of the area, based on the RRS, where signs are highlighted according to their condition to give a direct visual indication of where attention is required on the network. Map features and thematic maps must be able to be exported as shape files and images

CB3.4.2 Outputs Specific to Asset Management Requirement

CB3.4.2.1 Detailed outputs

Componentised Traffic Signs Asset Register

The results should be given per region, for each township and ward, for every section of road in alphabetic order of street names. Apart from numerical assessments, assets should be rated on a qualitative scale from very good to very poor for Traffic Signs.

SECTION C: STRUCTURE MANAGEMENT SYSTEM (BMS)

CC3.1 EMPLOYER'S OBJECTIVES

The provision, implementation and operating of a Structure management system for all bridges, major culverts, tunnel, subways, retaining walls and gantries for the City of Tshwane: 3 year period.

The compilation of structure specific data followed by the processing of collected data to produce information that would support management during their budgeting process as well as maintenance personnel during the implementation of maintenance activities.

CC3.2 SCOPE OF STRUCTURE MANAGEMENT SYSTEM

BACKGROUND

The Structure Management System should include all bridges, major culverts, tunnel, subways, retaining walls and gantries in the CoT and must be linked to the cloud system. The tender and visual assessment should be based on the official Road Referencing System (RRS) of the municipality.

The results of the proposed Structure Management System should be compatible with the outputs of the IMQS System currently in use.

The proposed Structure Management System must use the CoT corporate supported Road Referencing System (RRS) with low-level integration on a database level. The scope of this project dictates that the independently created databases, such as the Structure Management System (BMS), be integrated into one logical coherent relational infrastructure database.

The database integration of applications must be consistent with the official Road Referencing System (RRS). The consultant should highlight how the proposed system will address integration:

CC3.3 SPECIFICATION

MANAGEMENT / OVERSIGHT STRUCTURES FOR THE PROJECT

CC3.3.1 DATA COLLECTION

CC3.3.1.1 Network Definition (Inventory)

To capture inventory data of all structures (bridges, major culverts, tunnel, subways, retaining walls and gantries) on the network onto the Structure Management System based on the official Road Referencing System (RRS) of the City, with the creation of spatial reference data where structures cannot be referenced directly to a road.

This system should provide the functionality to serve as a database in which all relevant structure data can be recorded, assessed and manipulated as and when required and capturing the inventory of all structures in the network including but not limited to construction details, function, balustrade, size, type, owner, position as well as the elements under or over structures, photos and drawings

The Inventory List should show all structures available grouped per network, then per suburb (within the network) and then per user-defined field (within the suburb). The user-defined fields are:

- Street
- River/Stream Code
- River/Stream Name
- Railway Track Code
- Railway Track Name
- Route/Catchment Area

Totals of all structures should be given per Network and then per Suburb within that Network. Structure Fields to be showed is:

- Structure No.
- Km position
- Route/Catchment
- Ward
- The From and To Street
- Length (mm)
- Width
- Owner
- Function
- Type
- A description of the structure type

Below, the Inventory sections required:

- Structure Number
- Historic Number
- Name/Description
- Route Name
- Const. Date
- Length/Width (mm)
- GPS Information
- Road
- Link Number
- From/To
- KM Position
- Farm
- Ownership
- Function
- Type
- General notes (form to be altered)
- Dim.
- River/Stream
- Railway Track
- Ballast
- Road Info.
- Sidewalk
- Cycle Path
- Lighting
- Expansion Joints
- Pedestrian Counts
- Route Class
- AADT
- AADT Year

CC3.3.1.2 Network characterisation

A number of semi-permanent characteristics of the structure are used in the analysis and should therefore be determined for each structure. These characteristics are:

(f) Structure Position

The indication of the structure position in the RRS segment.

(g) Structure Geographical Location

The Structure geographical position represented by the GPS coordinates and allowing the plotting of structures spatially on the GIS. This information is obtained from a GPS device. Coordinates are captured in WGS84 DD (Decimal Degree) format.

(h) Structure group, category, ownership, type and name

To ensure that the entire system is centralised and that no external application is required, all structures must be read into the system. The system should reference all structures evaluated by an assessor within an internal database. Changes and updates of the structures ought to easily be conducted.

CC3.3.2 Structures condition (Visual assessment) of Bridges, major culverts, tunnel, subways, retaining walls and gantries.

Data sets:

d) Fixed information

This includes information such as structure name, position, height, construction details, function, balustrade, size, type, owner, as well as the elements under or over the structure, photos and drawings

e) Functional Condition assessment

Structure Condition Assessment, known as Structure Visual Assessment, is done according to TMH19. Unlike the inventory, the condition of the structure could change drastically and therefore assessments are frequently done. Defects should be completed in full.

The Visual Assessment section is divided into five categories:

- Waterway
- Structure
- Approach
- General

f) Functional Condition assessment: Waterway

The waterway section should be completed if water flows underneath or through the structure. This section should be divided into upstream and downstream. For the upstream and downstream sections, degree and extent values should be marked. For downstream and upstream together, urgency should be marked according to criticality (either upstream or downstream). Values should be marked for specific sub categories under "Waterway". They are:

- Reeds
- Trees
- Fencing
- Rubbish/Trunks
- Silted Up
- Erosion

g) Functional Condition assessment: Structure

This section should be divided into different structural parts which are:

- A. Foundation
- B. Abutments
- C. Wing Walls

- D. Piers
- E. Deck

As illustrated below, for each structural part, different properties should exist which should be evaluated. These properties are:

- A. Concrete (Checked)
- B. Concrete (Damaged)
- C. Concrete (Integrity)
- D. Steel Exposed
- E. Erosion
- F. Seepage Water
- G. Weep Holes
- H. Movement
- I. General Condition

With some structural parts, some properties cannot be evaluated and is irrelevant e.g. Foundation and Weep Holes. For each Structural Part/Property the Degree, Extent and Urgency should be filled in with a maximum value of 5. With concrete integrity and General Condition however, the condition should be marked. That is now for every structural part. The condition could be:

- A. VG – Very good
- B. G – Good
- C. F – Fair
- D. P – Poor
- E. VP – Very Poor

Balustrade and Handrail is not part of any structural category and is seen for the structure in general. With balustrade and handrail, a description in each block should be given so that the assessor will evaluate Balustrades and Handrails according to those criteria. These are Need, Reinstate, Replace, Repair and Paint.

h) Functional Condition assessment: Approach

As illustrated below, different Approach properties should exist that should be evaluated. These properties are not divided into structural categories and are:

- A. Embankment
- B. Guardrail
- C. Side Walk / Cycle Path
- D. Road Signs (Both Sides)

For each Property the Degree, Extent and Urgency should be filled in and NOT marked. The maximum value should be 5.

A description in each block should be given so that the assessor will evaluate all items according to those criteria.

i) Functional Condition assessment: General

- A. Vegetation

In general, assessment should be done on the vegetation that is found on the bridge. A degree, extent and urgency should be filled in for the cleaning of vegetation, herbicide and cutting the grass.

- B. Assessment should be done on the trees that are found on the bridge. A degree, extent and urgency should be filled in for the deck and wing walls. No trees are allowed in the immediate vicinity of the wing walls, deck and riverbed under the bridge.

- C. Regarding structure paint and graffiti found on the bridge, a degree, extent and urgency should be specified take in consideration
- D. For Bearings, Pads and Expansion Joints, the same values are necessary.
- E. Assessor. It is important that the assessor's name is completed. With this, any discrepancy regarding an assessment can be discussed with the assessor.
- F. Remarks. Any remarks can be filled in at this location. (especially defects not listed on the form)
- G. Re-Assess. It should be specified if the structure should be re-assessed or not. Usually this is done when an assessor is uncertain or if a more detailed assessment is needed.
- H. Photo No.: A photo number should be specified for the Inlet, Outlet and Road. For any other defect, photo numbers can be specified as well. These are the photo numbers assigned by digital cameras. Please ensure that the numbering system stays unique by allowing the camera to increment the numbers after each photo download and by specifying the correct assessment date.
- I. Date. The current assessment date should be filled in at this location
- J. Capture Date. This date is filled in by the data capturer and should not be filled in by the assessor.

CC3.3.3 Structures condition (Visual assessment) of Gantries and Retaining Walls and Tunnels

Data sets:

(a) Fixed information

This includes information such as structure position, height, construction details and function.

(b) Functional Condition assessment

Structure Condition Assessment, known as Structure Visual Assessment is done according to TMH19. Unlike the inventory, the condition of the structure could change drastically and therefore assessments are frequently done. Defects should be completed in full.

(c) Functional Condition assessment: Structure

This section should be divided into different structural parts which are:

- Retaining Wall (Use Inspection form R1 from Draft TMH19, 2013):
 - A. External drainage
 - B. Slope protection
 - C. Wall
 - D. Joints
 - E. Internal drainage
 - F. Foundation
 - G. Miscellaneous

- Gantry (Use Inspection form G1 from Draft TMH19, 2013):

- A. Guardrails
- B. Foundations
- C. H D bolts and base plates
- D. Vertical member
- E. Horizontal member
- F. Sign face
- G. Sign fasteners
- H. Miscellaneous items

- Road Tunnel (Use Inspection form T1 from TMH19):

- A. Portals
- B. Slope protection
- C. Rock fall protection
- D. Drainage
- E. Road surface
- F. Lining
- G. Joints
- H. Handrails
- I. Operational services
- J. Miscellaneous items

The condition could be:

- A. VG – Very good
- B. G – Good
- C. F – Fair
- D. P – Poor
- E. VP – Very Poor

CC3.4 OUTPUTS REQUIRED

CC3.4.1 Outputs to be generated by the Structure Management System:

CC3.4.1.1 Inventory based outputs such as number of structures, type of structures

c) Maps showing the physical location of each structure.

Condition based outputs detailed printouts of the processed information should be given for each township and ward, per region, for every structure. The results must be presented in the following summarised formats:

- (a) A series of charts giving a qualitative indication of the condition
- (b) Maps showing structure requiring attention
- (c) Listing of the required maintenance needs (with associated costs) in order of priority
- (d) A series of charts giving the type of maintenance recommended

CC3.4.1.2 Summarised condition assessment (Charts and Graphs)

The distribution of the condition of the structures for various sets of data must be shown in the form of charts.

The graphs to be generated by the system are:

a. Structure Condition Graph:

This graph should give a pictorial view of the overall condition of the Structures in the area as well as the conditions within the Primary, Secondary, Main Tertiary and Tertiary route classes.

b. Suburb Condition Graph:

This graph should give a pictorial view of the structures condition on a scale of very good to very poor per suburb. This aids in determining suburbs that require urgent attention thus giving them highest priority.

c. Structure Size Distribution Graph:

This graph is network, but not survey specific. Multiple graphs should be generated if a combined network is selected. Results for the combination network as well as for each subsequent network should be generated.

d. Structure type distribution chart:

With this graph, the distribution of structure type should be showed for a selected network. This graph is not survey specific because the structure type is captured in the inventory.

e. Structure ownership distribution chart:

With this graph, the distribution of ownership should be showed for a selected network. This graph is not survey specific because ownership is captured in the inventory.

CC3.4.1.3 Priority listings

The urgency and type of maintenance should be used to prepare three types of programmes in which projects are listed according to priority namely:

- d) Maintenance needs for the network: A summary of the total maintenance for the structures network, divided into functional condition and structure defects. Each of these must be subdivided into different structure classifications with a table giving the structures that needs attention and a table giving estimates / budget for each area.

The maintenance needs for structures must be listed in order of priority. The cost implication of individual projects must be given as well as the cumulative cost.

- e) Upgrading priorities standards: A priority list of these structures must be given with the cost implication of the individual projects as well as the cumulative cost.

CC3.4.1.4 Distribution of recommended maintenance requirements

The quantities of the various types of maintenance needs must be shown per structure category in a series of bar charts as well as maps indicating the needs.

CC3.4.1.5 Reports

The reports generated by the system must be aligned with TMH19 and should be:

(a) Remedial Action Project Costs Summary:

The reports should group all structures and display the total amount required for maintenance attention. Finally the report should give the total amount required to restore damaged structures.

(b) Remedial Actions by Route Class:

This summarised report should categorize all structures, per structure category, that need maintenance by route class and display the total structures that need maintenance attention. Finally the report should give a total figure of the amount of money required to restore damaged structures.

(c) Remedial Actions by Suburb:

This report should categorize all structures requiring maintenance by Suburb then by street and finally by structure type. Each row then has a sum of all structure types within a segment that need maintenance attention. Finally the report should give a total figure of the amount of money required to restore damaged structures.

The report should be detailed enough to direct maintenance personnel to a specific structure within a street that requires attention.

(d) Overall Structure Condition:

The report should give a numerical representation of the structure condition on the scale of very good to very poor.

(e) Structure Condition Index:

The report should give a numerical representation of the structure condition index that incorporates the degree, extent and urgency to present the true reflection of the structure condition. Weighing the Waterway, Structure, Approach and General assessment for major structures in regards to calculating the rehabilitation needs.

(f) GRAP 17 Structure Unbundling Report:

The report should address unbundling of the existing asset register for structures and componentised as per TMH19 recommendation.

(g) GRAP 17 Structure asset verification report

The report should provide confirmation of asset verification in terms of GRAP17 requirements, e.g. asset location, condition, combo ID, remaining useful life and quantity per component)

(h) GRAP 17 Structure maintenance performance report

The report should provide information on maintenance work carried out on structures over the last financial year.

CC3.4.1.6 Condition maps

Maps of an area, based on the RRS, where structures are highlighted according to their category and condition to give a direct visual indication of maintenance needs.

a. Ownership maps:

With the Ownership Theme, structures should be coloured according to their ownership, which could be:

- National
- Municipal
- Provincial
- PRASA
- Metro Rail
- Gautrain
- Private
- BRT
- Unknown

b. Structure Condition maps:

With the Structure Condition Theme, structures should be coloured according to their condition, which could be:

- VG – Very good
- G – Good
- F – Fair
- P – Poor
- VP – Very Poor

c. Structure Category maps:

With the Structure Category Theme, structures will be coloured according to their Structure Category, which could be:

- Bridge
- Culvert
- Tunnel
- Subways,
- Gantries
- Retaining walls

In addition, for Structures of category Bridges, a map indicating Type is required, which could be:

- Steel
- Free Span
- Continuous Beam
- Stressed
- Cable/Other
- Cell
- Portal
- Pipe
- Armco
- Low Water
- Drift
- Non

SECTION D: ROADSIDE INFRASTRUCTURE MANAGEMENT SYSTEM (RIMS)

CD3.1 EMPLOYER'S OBJECTIVES

The provision, implementation and operating of a cloud-based system roadside Infrastructure management system for all roadsides for the City of Tshwane: 3 year period

The compilation of roadside specific data followed by the processing of collected data to produce information that would support management during their budgeting process as well as maintenance personnel during the implementation of maintenance activities.

Informing the municipality about the condition of the roadside network by identifying problems, quantifying the potential safety risk or loss of functionality, prioritising the maintenance and repair needs and summarising the information in an executive summary.

CD3.2 SCOPE OF ROADSIDE INFRASTRUCTURE MANAGEMENT SYSTEM

BACKGROUND

The Roadside Infrastructure Management System should include all roadside furniture in the CoT and must be linked to the Roads and Stormwater Infrastructure GIS. The tender and visual assessment should be based on the official Road Referencing System (RRS) within the cloud system.

The results of the proposed Roadside Infrastructure Management System should be compatible with the outputs of the cloud system.

The proposed Roadside Infrastructure Management System must use the CoT corporate supported Road Referencing System (RRS) with low-level integration on a database level. The scope of this project dictates that the independently created databases, such as the Roadside Infrastructure Management System, be integrated into one logical coherent relational infrastructure database. The Roadside Infrastructure Management System must form part of the cloud system.

CD3.3 SPECIFICATION

MANAGEMENT / OVERSIGHT STRUCTURES FOR THE PROJECT

CD3.3.1 DATA COLLECTION

CD3.3.1.1 Network Definition (Inventory)

The proposed Roadside Infrastructure Management System should provide inventory statistics i.e.

- (i) Existence, approximate length and type of walkways, kerbs, guardrails, bollards, fences, ancillary asset such as traffic calming devices and bus shelters (per road link side).
- (ii) Summary of data on total network or suburb.

Sections should be identified by the name of the road concerned; this system should provide the functionality that enables one to:

- (i) Methodically collect relevant data (Visual Assessment of all roadside furniture)
- (ii) Capture roadside condition and store the data.
- (iii) Process the data and produce managerial and maintenance reports.

Inventory summary list:

1. Roadside Category Summary
2. Roadside Surface Coverage Summary
3. Roadside Facility Lengths
4. Kerbing Inventory Summary
5. Guardrail Inventory Summary
6. Bollard inventory Summary
7. Fences inventory Summary
8. Ancillary assets such as traffic calming devices and bus shelters

CD3.3.1.2 Network characterisation

A number of semi-permanent characteristics of the roadsides are used in the analysis and should therefore be determined for each section. These characteristics are:

(a) Geometry

The length and width of each section are necessary to determine the surface areas of the maintenance projects and of the roadside network.

(b) Functional class

The proportion of the various classes of roadsides in an area must be given by means of charts as well as maps indicating the classification of the roadsides within the network.

CD3.3.2 Roadside furniture assets condition (Visual assessment)

The degree of the defect type and size should be recorded, needs repair also indicated in number, length, area or volume.

a. Walkway: Condition assessment needs.

- Potholes
- Step: walkway
- Step: side
- Cracks
- Sagged/Lifted
- Voids
- Weeds
- Obstruction: prune
- Obstruction: load
- Missing/broken
- Drainage

b. Cycle lane / parking: Condition assessment needs.

- Potholes
- Cracks
- Deformation
- Surfacing
- Obstruction: prune

- Obstruction: load
- Weeds
- c. Alongside walkway: Condition assessment needs.
 - Uneven/eroded
 - Weeds/grass
 - Too low
- d. No walkway: Condition assessment needs.
 - Too low
 - Weeds
 - Footpath signs
 - Passability
- e. Kerbing: Condition assessment needs.
 - Missing/broken
 - Moved/loose
- f. Barrier poles / Bollards: Condition assessment needs.
 - Missing/broken
 - Slanting
- g. Services: Condition assessment needs.
 - Too high/Too low
 - Cover missing
 - Damaged
 -
- h. Guardrails: Condition Assessment
- i. Fences: Condition Assessment
- j. Ancillary assets such as traffic calming devices and bus shelters

CD3.4 OUTPUTS REQUIRED

CD3.4.1 Outputs to be generated by the Roadside Infrastructure Management System:

CD3.4.1.1 Summary Report Information Required

This section should give management summaries of the condition of the roadside furniture in terms of kerbing, walkways, bollards, fences, guardrails, and ancillary assets such as traffic calming and bus shelters and aesthetical condition. A table containing the number of links in a specific condition for a suburb, should be shown for each function assessed.

The priority allocated to a defect should be based on the safety and functionality of each facility assessed.

a. Roadside Category Summary Report:

The category per link per side should indicate the importance of this sidewalk in the roadside hierarchy of the network. There are four categories:

- P1 - Primary with high pedestrian traffic.
- P2 - Primary with low pedestrian traffic.
- S - Secondary classification.
- T - Tertiary classification.

b. Kerbing Condition Summary Report:

The summary information for kerbing should indicate the number of links within a specific condition in terms of kerbing on that link. These conditions should be calculated with an algorithm according to the number and type of defects together with a priority as indicated by the assessor of the link. The difference between the total links and the number of links should be shown in the table indicating the number of links without kerbing. At the end of the table, a summary for the total area assessed within the network should be given.

c. Walkway Condition Summary Report:

The summary information for walkways should indicate the number of links with walkways and should provide the walkway condition per suburb, indicated as number of roadsides in a specific condition. At the end of the table, a summary for the total area assessed within the network should be given.

d. Cycle lanes / Parking Areas Condition Summary Report:

The summary information for Cycle lanes / Parking Area's condition per suburb should indicate the number of roadsides within a specific condition as assessed by the assessors.

e. Unpaved Areas Condition Summary Report:

The summary condition information for Unpaved Areas per suburb should indicate the number of roadsides with a specific condition as calculated by the algorithm. At the bottom of the table, a summary for the whole area of the network assessed should be given.

f. Aesthetic Appearance Summary Report:

The summary information for aesthetic appearance per suburb should indicate the number of links with a specific aesthetic appearance as calculated by the algorithm.

g. Summary of Maintenance Priorities per Suburb Report:

The summary of Maintenance Priorities per Suburb should indicate the number of links with a potential safety risk or poor functionality for each facility per suburb.

h. Comparative Histograms - Summary of Condition over Time Report:

Histogram graphs should indicate the change of the condition for each facility (walkways, unpaved areas, cycle lane / parking areas, kerbing, fences, guardrails, bollards, ancillary assets such as traffic calming and bus shelters and aesthetical condition) over time, and shown for the total network and each suburb. Condition of facilities should be plotted on a five-point scale for all previous assessments together with the current assessment

i. Bollards Condition Summary Report:

The summary information for Bollards should indicate the number of links with bollards and should provide the condition per suburb. At the end of the table, a summary for the total area assessed within the network should be given.

j. Guardrails: Condition Assessment

The summary information for guardrails should indicate the number of links with guardrails and should provide the condition per suburb. At the end of the table, a summary for the total area assessed within the network should be given.

k. Fencing: Condition Assessment

The summary information for fencing should indicate the number of links with fencing and should provide the condition per suburb. At the end of the table, a summary for the total area assessed within the network should be given.

l. Ancillary assets: Condition Assessment

The summary information for ancillary assets should indicate the number of links with ancillary assets and should provide the condition per suburb. At the end of the table, a summary for the total area assessed within the network should be given.

CD3.4.1.2 Summarised condition assessment (Charts and Graphs)

This section should give a summary of the maintenance needs for the roadside furniture in terms of kerbing, walkways, guardrails, fences, bollards, and ancillary assets and aesthetic appearance.

CD3.4.1.3 Network Maintenance Needs Priority listings

Summary of the maintenance needs for the roadside in terms of kerbing, walkways, guardrails, fences, bollards, and ancillary assets and aesthetic appearance required. A priority list indicating the specific links that require maintenance, in a prioritised order according to the condition, the overall index and the roadside category, should be given.

a. Kerbing Priority List

The priority list for kerbing (repair and maintenance) should indicate, in a descending order, the links that require attention.

b. Roadside Priority List

The priority list for roadsides should indicate, in descending order, the links requiring attention. Walkways, unpaved areas, cycle lanes, parking areas and services are listed in this priority list.

c. Aesthetic Condition Improvement Priority List

The priority list for aesthetics should indicate, in descending order, the links on which functional or aesthetic problems occur that requires attention. This report should be divided between weeding on the walkways and a priority list of weeding and pruning requirements for the total roadside.

d. Guardrails Condition Improvement Priority List

The priority list for guardrails should indicate, in descending order, the links on which functional guardrail problems occur that requires attention.

e. Fences Condition Improvement Priority List

The priority list for fences should indicate, in descending order, the links on which functional fences problems occur that requires attention.

f. Bollards Condition Improvement Priority List

The priority list for bollards should indicate, in descending order, the links on which functional bollards problems occur that requires attention.

g. Ancillary Assets Improvement Priority List

The priority list for ancillary assets should indicate, in descending order, the links on which functional ancillary assets problems occur that requires attention.

CD3.4.1.4 Distribution of recommended maintenance requirements

The quantities of the various types of maintenance needs must be shown in a series of charts as well as maps indicating the needs.

CD3.4.1.5 Network Upgrading Needs

This section should give a list of proposed upgrading of the network as picked up during the assessment of roadsides. A priority list indicating the specific links that require facilities should be produced, ordered according to the roadside furniture category and the overall condition index of the link.

CD3.4.1.6 Detailed Network Condition Index

This section should give a detail list of each link per suburb with its roadside information and assessment results per side. Condition should be described per roadside asset, per street link.

The condition of each roadside asset should be given with priorities, requirements and the defects per facility.

CD3.4.1.7 Network Inventory

This section should give a detail list of each roadside asset per link per suburb.

CD3.4.1.8 Condition maps

Road maps of the area, based on the RRS, where roadside furniture is highlighted according to their condition, priorities, and requirement to give a direct visual indication of where attention is required on the network

SECTION E: STORMWATER MANAGEMENT SYSTEM (SMS)

CE3.1 EMPLOYER'S OBJECTIVES

The provision, implementation and operating of a cloud-based stormwater management system for all stormwater infrastructures for the City of Tshwane: 3 year period

CE3.2 SCOPE

BACKGROUND

The successful bidder will be expected to utilise all available As Built and Stormwater Master Planning (SMP) data that the CoT has and combine it into a cloud-based management system. This system will aid the CoT in its maintenance functions. Large areas in the jurisdiction of the CoT have a SMP and sufficient As-Built information. Other areas will only have one of the two.

Firstly the successful service provided will need to develop/propose an acceptable cloud based stormwater management system that will be used to add existing data and collected data as specified in the three possible data scenarios below.

The tender will be based on three possible data scenarios:

i) Data scenario One (1): Both As-Built and SMP Available

The first area has as-built data as well as a Stormwater Master Plan that must be utilised. The data will be available in an electronic format. The SMP will provide the expected magnitudes for the 1:2 and 1:20 year flood events. The service provider will be expected to use the As-Built data in conjunction with the available SMP and add the data in an acceptable manner to the previously developed cloud-based stormwater management system. This will be a desk top study only.

Expected tasks can be summarised as:

- Linking and Processing Available As Built and SMP Data
- Assessing and utilising SMP data
- Adding data to the cloud-based stormwater management system

ii) Data scenario Two (2): No As-Built, only SMP Available

The second scenario has a SMP, but no as-built data is available. The service provider must quote for the investigation to assess existing infrastructure. The service provider will be expected to use the surveyed data in conjunction with the available SMP and add it to the previously mentioned cloud-based stormwater management system.

Expected tasks can be summarised as:

- Evaluation of existing Stormwater Infrastructure, according to specifications.
- Assessing and utilising SMP data
- Adding data to the cloud-based stormwater management system

iii) Data scenario Three (3): As-Built data available, but no SMP Available

For the third data scenario the service provider will be expected to add the available As-Built data to the developed cloud-based stormwater management system. The service provider will not have to develop a SMP for these types of areas.

Expected tasks can be summarised as:

- Processing Available As-Built Data
- Adding data to the cloud-based stormwater management system

CE3.3 SPECIFICATION

MANAGEMENT / OVERSIGHT STRUCTURES FOR THE PROJECT

CE3.3.1 As - Built Inventory and Investigation

CE3.3.1.1 As-Built Data Collection and Compilation

The on-site As-Built evaluation must be conducted using electronic handheld devices with GPS capabilities. The following information must be surveyed and captured by the handheld device for each node (ex. Manholes and Kerb Inlets) and link (ex. pipelines or channels) associated with the stormwater infrastructure.

Nodes:

- Node Name - Automatically generated using pre-set criteria.
- Node Type - Ex. Manhole, kerb inlet.
- Node Material - Concrete, steel or other (earth or brickwork).
- Node Position - GPS coordinate of the node.
- Node Depth - Measured in the node structure if applicable.
- Node Condition/ functionality - The current state and condition of the node.
- Photograph of the current condition of the node.
- Incoming and outgoing link size and type.
- Evaluator Details.
- Date captured.
- Any other relevant information.

Links:

- Link Type - Ex. pipes or channels.
- Link Size - Physical measurement of each link size and length.
- Link Material - Concrete or other (ex, HDPE).

Condition will be based on the standard DERU method of rating condition, from 1 to 5.

- | | |
|-----------|-------------|
| One (1) | - Very Good |
| Two (2) | - Good |
| Three (3) | - Fair |
| Four (4) | - Poor |
| Five (5) | - Very Poor |

CE3.3.1.2 Cloud based As– Built Inventory Requirements

With all the data scenarios encountered, as listed in specifications, the prospective service provider will be expected to produce a functioning inventory data base that will:

- List all infrastructure found
- Provide source of information, As Built or Surveyed.
- Data of installation, if available
- Type
- Functionality
- Condition
- Material
- GPS Coordinates
- Photo of infrastructure

This data base must be updatable by the CoT maintenance department and training must be provided to allow for the addition of infrastructure as it is constructed. Support must be provided for the entire period of the appointment.

CE3.3.2 Processing of Available Data

The following must be included:

- Link the scanned plans within the integrated management query system enabling opening of the scanned images via the systems spatial interface and including a fully integrated database for querying capabilities.
- Geo-reference the scanned images to form the referencing footprint within the query system.

CE3.4 OUTPUTS NEEDED

CE3.4.1 Main Outcomes

The service provider will be expected to produce the following after completion of any possible study area:

- An As-built inventory, either from As-built plans or from a detailed investigation
- Flexible Cloud based query system

CE3.5 Information Technology Specifications

The system should provide a cloud-based interface where stormwater inventory and condition data can be uploaded, rendered and displayed. The interface should allow data to be captured with or without GSM connectivity.

Due to the requirement that the inventory, master plan and as-built data should be deeply and seamlessly integrated with the Road Referencing System (RRS), the system should, via the cloud, request the street information from the RRS by providing GPS coordinates. Once stored in the database, this information should then become visible through a web interface.

The system should expose Web Services to mobile devices to enable the mobile devices to search for and download stormwater information based on the area or coordinates.