



CITY OF TSHWANE METROPOLITAN MUNICIPALITY

TENDER NUMBER:

GICT 02 2025/26

TENDER DESCRIPTION:	TENDER FOR THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE PUBLIC WI-FI NETWORK AND THE MAINTENANCE OF THE FIBRE NETWORK AS AND WHEN REQUIRED, FOR A PERIOD OF THREE (3) YEARS.
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NAME OF BIDDER:

CSD NUMBER:

VENDOR NUMBER (WHERE APPLICABLE)

Prepared by:
City of Tshwane Metropolitan Municipality
Tshwane House
320 Madiba Street
Pretoria CBD
0002
Tel: 012 358 9999

BID CLOSING DATE

18 SEPTEMBER 2025

Only bidders registered on the central supplier database (CSD) and with a CSD number will be considered for this tender, as this is a requirement from the National Treasury.

“Note: Bidders are required to submit electronic copies of the bid either by memory stick/USB flash drive/CD/DVD together with the hard copy of the Bid/Proposals”



CITY OF TSHWANE METROPOLITAN MUNICIPALITY

DEPARTMENT: SHARED SERVICES: ICT DIVISION

Bids are hereby invited from suppliers for the following bid:

Bid number	Description	Department	Contact person	Compulsory briefing session	Closing date
GICT 03 2025/26	TENDER FOR THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE PUBLIC WI-FI NETWORK AND THE MAINTENANCE OF THE FIBRE NETWORK AS AND WHEN REQUIRED, FOR A PERIOD OF THREE (3) YEARS.	SHARED SERVICES: ICT DIVISION	Technical enquiries: LeRoy Olivier (leroyo@tshwane.gov.za or 012 358 4994)	Not applicable	18 September 2025 at 10:00

THE DOCUMENT IS DOWNLOADABLE ON THE TSHWANE WEBSITE (www.tshwane.gov.za) and on the E-tender portal.

Each tender shall be enclosed in a sealed envelope that bears the correct identification details and shall be placed in the tender box located at:

“Note: Bidders are required to submit electronic copies of the bid either by memory stick/USB flash drive/CD/DVD together with the hard copy of the Bid/Proposals”

**Tshwane House
320 Madiba Street
Pretoria CBD
0002**

Documents must be deposited in the bid box not later than 10:00 on 18 September 2025

Bidders must contact the following officials for any enquiries:

- Technical enquiries: LeRoy Olivier (leroyo@tshwane.gov.za or 012 358 4994)
- Supply chain enquiries: Relebogile Malatswane (RelebogileM@tshwane.gov.za or 012 358 2735)

Bids will remain valid for a period of 90 days after the closing date.

The validity period for the tender after closure is 90 days. The city shall have right and power to extend any tender validity period beyond any initial validity period set and subsequent extensions. SCM shall ensure that an extension of validity is requested in writing from all bidders before the validity expiry date. Extension of validity shall be finalised while the quotations/bids are still valid.

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VERY IMPORTANT NOTICE ON DISQUALIFICATIONS

A bid that does not comply with the peremptory requirements stated hereunder will be regarded as not being an “acceptable bid”, and such a bid will be rejected. An “acceptable bid” means any bid which, in all respects, complies with the conditions of the bid and the specifications as set out in the bid documents, including the conditions as specified in the Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000) and related legislation as published in *Government Gazette* 22549, dated 10 August 2001, in terms of which provision is made for this policy.

1. If any pages have been removed from the bid document and have therefore not been submitted or if a copy of the original bid document has been submitted.
2. If the bid document is completed using a pencil or Tippex corrections were made, or any other colour ink pen. Only black ink pen must be used to complete the bid document.
3. The bidder attempts to influence or has in fact influenced the evaluation and/or awarding of the contract.
4. The bid has been submitted after the relevant closing date and time.
5. If any bidder who, during the last five years, has failed to perform satisfactorily on a previous contract with the municipality, municipal entity or any other organ of state after written notice was given to that bidder that performance was unsatisfactory.
6. The accounting officer must ensure that, irrespective of the procurement process followed, no award may be given to a person –
 - (a) who is in the service of the state;
 - i. 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
 - ii. who is an advisor or consultant contracted to the municipality in respect of a contract that would cause a conflict of interest.
7. Bid offers will be rejected if the bidder or any of his/her directors are listed on the Register of Bid Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004) as a person prohibited from doing business with the public sector.
8. Bid offers will be rejected if the bidder has abused the City of Tshwane supply chain management system.
9. Failure to complete and sign the certificate of independent determination or disclosure of wrong information.
10. Duly Signed and completed MBD forms (MBD 1, 4, 5, 8 and 9) The person signing the bid documentation must be authorised to sign on behalf of the bidder. Where the signatory is not a Director / Member / Owner / Shareholder of the company, an official letter of authorization or delegation of authority should be submitted with the bid document.
11. All MBD documents fully completed and fully signed? By the authorized personnel.
12. False or incorrect declarations on any of the MBD documents will result in the rejection of the bidder.

- 13 It is the responsibility of the bidder to disclose in MBD4 any interest in any other related companies or business whether they are bidding for this contract. Failure to disclose this interest will result in the rejection of the bid.
- 14 Joint Ventures (JV) – (Only applicable when the bidder tender as a joint venture)
- i. Where the bidder bid as a Joint Ventures (JV), the required or relevant documents under administrative requirements must be provided/submitted for all JV parties. (These include MBD4, MBD5, MBD8, MBD 9, CSD and/ or SARS pin, Confirmation that the bidder's municipal rates and taxes are up to date.)
 - ii. In addition to the above the bidder must submit a Joint Venture (JV) agreement signed by the relevant parties.
 - iii. It is a condition of this bid that the successful bidder will continue with same Joint Venture (JV) for the duration of the contract, unless prior approval is obtained from City of Johannesburg.
 - iv. JV agreement must be complete, relevant and signed by all parties.

Failure to comply with the above will lead to immediate disqualification.

Bidder

CERTIFICATE OF AUTHORITY FOR SIGNATORY

Status of concern submitting tender (delete whichever is not applicable):

COMPANY/PARTNERSHIP/ONE-PERSON BUSINESS/CLOSE CORPORATION/JOINT VENTURE

A. COMPANY

If the bidder is a company, a certified copy of the resolution of the board of directors that is personally signed by the chairperson of the board, authorising the person who signs this bid to do so and to sign any contract resulting from this bid, and any other documents and correspondence in connection with this bid or contract on behalf of the company, must be submitted with this bid.

An example is shown below:

By resolution of the board of directors on 20.....,
Mr/Ms has been duly
authorised to sign all documents in connection with
Bid Number

SIGNED ON BEHALF OF THE COMPANY:

IN HIS/HER CAPACITY AS

DATE:

SIGNATURE OF SIGNATORY:

WITNESSES: 1.

2.

B. PARTNERSHIP

The following particulars in respect of every partner must be furnished and signed by every partner:

Full name of partner	Residential address	Signature
.....
.....
.....

We, the undersigned partners in the business trading as, hereby authorise to sign this bid as well as any contract resulting from the bid and any other documents and correspondence in connection with this bid or contract on our behalf.

.....
Signature	Signature	Signature

.....
Date	Date	Date

C. ONE-PERSON BUSINESS

I, the undersigned,, hereby confirm that I am the sole owner of the business trading as

.....
Signature	Date

D. CLOSE CORPORATION

In the case of a close corporation submitting a bid, a certified copy of the founding statement of such corporation shall be included with the bid with a resolution by its members, authorising a member or other official of the corporation to sign the documents and correspondence in connection with this bid or contract on behalf of the company.

An example is shown below:

By resolution of the members at the meeting on 20..... at
....., Mr/Ms, whose
signature appears below, has been duly authorised to sign all documents in
connection with Bid Number

SIGNED ON BEHALF OF THE CLOSE CORPORATION:

IN HIS/HER CAPACITY AS:

DATE:

SIGNATURE OF SIGNATORY:

WITNESSES: 1.

 2.

E. CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This returnable schedule is to be completed by joint ventures.

We, the undersigned, are submitting this bid offer in joint venture and hereby authorise Mr/Ms , authorised signatory of the company..... , acting in the capacity of the lead partner, to sign all documents in connection with the bid offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature: Name: Designation:
		Signature: Name: Designation:
		Signature: Name: Designation:
		Signature: Name: Designation:



SHARED SERVICES: ICT DIVISION

TENDER FOR THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE PUBLIC WI-FI NETWORK AND THE MAINTENANCE OF THE FIBER NETWORK AS AND WHEN REQUIRED, FOR A PERIOD OF THREE (3) YEARS

BID NUMBER: (GICT 02 2025/26)

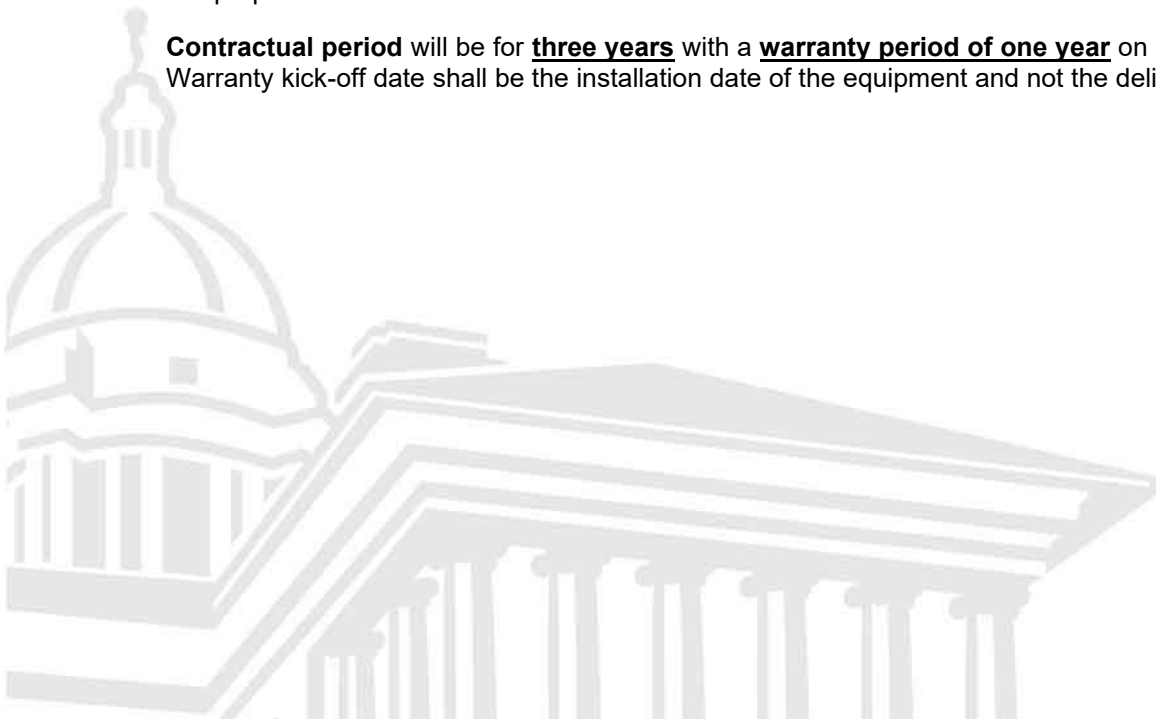
1. INTRODUCTION AND PURPOSE

The City of Tshwane (CoT) is dependent on Information and Communication Technology (ICT) in almost every segment of its operations. However, business processes that depend on IT are only as reliable and sustainable as the underlying ICT infrastructure. In order to better align business requirements with ICT capabilities and deliver ICT capabilities at an appropriate cost, CoT management is shifting from an ICT technology focus to an ICT service model approach.

Tenderers are invited to submit a proposal to the City of Tshwane (CoT) to provide such hardware and support services to ensure reliable functioning and sufficient capacity exist for all the CoT communication infrastructure. The purpose of this document is to:

- Provide the prospective Vendor with sufficient information to understand and respond to the requirements.
- Ensure that comparable information is obtained from Vendors.
- Provide a structured framework for the subsequent quantitative and qualitative evaluation of proposed solutions.

Contractual period will be for **three years** with a **warranty period of one year** on all equipment. Warranty kick-off date shall be the installation date of the equipment and not the delivery date.



2. BACKGROUND

- **How was this bid/project identified?**

The services requested in this tender is currently being provided on a tender, that was awarded in 1 September 2022 and lapses on 30 August 2025. Given the SCM processes that normally needs to run its course and that the tender lapses on said date, 3 months after the end of year recess, the department want to have the tender processed and approved before the time that no service lapse occurs here.

- **The aim and objectives of the project:**

Is to continue to provide in all UTP and Fibre services and related switching equipment needs to Council, as is presently being done on the abovementioned tender. This will ensure that market related, state of the art, now relevant Fiber and UTP Networking solutions and equipment be provided to Council.

- **The leading department must indicate the location of the project:**

This project will be driven by Shared Services: ICT Division, and the applications and solutions thus obtained will be used council wide by all other departments in council and related stake holders.

- **List all the stakeholders involved:**

The Executive Mayor, Office of the Speaker, Office of the City Manager, All Political Office Bearers, Chief Operating Officer, Chief Financial Officer, Group Head, Divisional Heads, Directors, Deputy Directors and all personnel below the level of DD.

- **Are there any permissions/approvals required? If so, by whom, including land owners:**

None – expect for the approval of the different SCM committees with the eventual approval to be granted by Council/Mayco.

- **Who will benefit directly and indirectly from this bid/project and how?**

All officials and Political Office Bearers in Council contacting Council in any way during the carrying out of their responsibilities and doing business for and with Council.

- **What control and monitoring measures are envisaged?**

The standard SCM and financial management measures as will apply to all tenders and services provided to Council will be applicable here.

- **Tender Sections:**

The tender consists of 6 various interrelated sections:

- Section 1: Purpose and scope
- Section 2: The installation and maintenance of network- and telephone points and the maintenance of the fibre network
 - Section 2.1: General specifications
 - Section 2.2: The installation and maintenance of network- and telephone points
 - Section 2.3: Maintenance of the fibre network
- Section 3: Public Wi-Fi

- Section 4: Occupational Health and Safety considerations and agreement
- Section 5: Tender forms
- Section 6: Service Level Agreements
 - Section 6.1 - Service Level Agreements: General
 - Section 6.2 - Service Level Agreements: Installation and maintenance of network and telephone points (UTP)
 - Section 6.3 - Service Level Agreements: Maintenance of the fibre network
 - Section 6.4 - Service Level Agreements: Public Wi-Fi network
- **Duration of the contract**

This tender will be awarded to a single bidder who will be responsible for all aspects of the contract and services as requested in this tender document.

The successful bidder will be appointed for a period of 3 years (36 months). The duration includes the Training of technical users, maintenance and support, software and hardware.

The successful Bidder should note that the migration and implementation of the service must be completed and operational within a maximum of 3 (three) months from the award date which forms part of the 3 Years (36 Month) agreement.

The successful bidder shall be subjected to SCM annual review to ensure that the tendered prices are still in line with the market related prices and all savings generated by unit price decreases be passed along to Council.

3. PROJECT SCOPE

To provide and maintain the CoT network and telecoms infrastructure needed to extend the current network and to maintain and improve the current network. Please note that this is on an as and when required basis.

- **Installation and Maintenance of Network Points and Telephone Points:** This part entails the installation of network- and telephone points and could either be daily points needed throughout the City or the provision of cabling in new buildings, re-wiring of existing buildings due to changes etc.
- **Fiber Network Repair and Maintenance:** This part entails the repairs and maintenance of broken fiber as identified by Council (ICT).
- **Public Wi-Fi:** The maintenance and installation of public Wi-Fi hot spots.

4. DELIVERABLES

To provide and maintain the CoT with the necessary network and telecoms infrastructure needed to extend the current network, to maintain and improve the current network, to monitor, protect and secure the network.

5. STAGES OF EVALUATION

The following tender will be evaluated according to the following stages:

Stage 1: Administrative Compliance

Stage 2: Mandatory Compliance

Stage 3: Functionality Criteria

Stage 4: Preference Point System

5.1 STAGE 1: ADMINISTRATIVE COMPLIANCE

All the bids will be evaluated against the administrative responsiveness requirements as set out in the list of returnable documents.

Compulsory Returnable Documentation (Submission of these are compulsory)	Submitted (YES or NO)	Checklist (Guide for Bidder and the Bid Evaluation Committee)
a) To enable The City to verify the bidder's tax compliance status, the bidder must provide; <ul style="list-style-type: none"> • Tax compliance status PIN. or • Central Supplier Database (CSD) 		Tax status must be compliant before the award.
b) A copy of their Central Supplier Database (CSD) registration; or indicate their Master Registration Number / CSD Number;		CSD must be valid.
c) Confirmation that the bidding company's rates and taxes are up to date: Original or copy of Municipal Account Statement of the Bidder (bidding company) not older than 3 months and account must not be in arrears for more than ninety (90) days; or ,signed lease agreement or In case of bidders located in informal settlement, rural areas or areas where they are not required to pay Rates and Taxes a letter from the local councillor		Was a Municipal Account Statement or landlord letter provided for the bidding company? The name and / or addresses of the bidder's statement correspond with CIPC document, Address on CSD or Company profile? Are all payment(s) up to

Compulsory Returnable Documentation (Submission of these are compulsory)	Submitted (YES or NO)	Checklist (Guide for Bidder and the Bid Evaluation Committee)
confirming they are operating in that area		date (i.e. not in arrears for more than 90 days?
d) In addition to the above, confirmation that all the bidding company's owners / members / directors / major shareholders rates and taxes are up to date: • Original or copy of Municipal Account Statement of all the South African based owners / members / directors / major shareholders not older than 3 months and the account/s may not be in arrears for more than ninety (90) days; or a signed lease agreement of owners / members / directors / major shareholders or In case of bidders located in informal settlement, rural areas or areas where they are not required to pay Rates and Taxes a letter from the local councillor confirming they are residing in that area		Was a Municipal Account Statement or landlord letter provided for the bidding company? The name and / or addresses of the bidder's statement correspond with CIPC document, Address on CSD or Company profile? Are all payment(s) up to date (i.e. not in arrears for more than 90 days?
e) Duly Signed and completed MBD forms (MBD 1, 4, 5, 8 and 9) The person signing the bid documentation must be authorized to sign on behalf of the bidder. Where the signatory is not a Director / Member / Owner / Shareholder of the company, an official letter of authorization or delegation of authority should be submitted with the bid document. NB: Bidders must ensure that the directors, trustees, managers, principal shareholders, or stakeholders of this company, declare any interest in any other related companies or business, whether or not they are bidding for this contract. <u>See Question 3.14 of</u>		All documents fully completed (i.e. no blank spaces)? All documents fully signed by (any director / member / trustee as indicated on the CIPC document, alternatively a delegation of authority would be required? Documents completed in black ink (i.e. no "Tippex" corrections, no pencil, no other colour ink, or non-submission of the MBD forms , will be considered)?

Compulsory Returnable Documentation (Submission of these are compulsory)	Submitted (YES or NO)	Checklist (Guide for Bidder and the Bid Evaluation Committee)
<u>MBD 4. Failure to declare interest will result in a disqualification</u>		
<p>f) Audited Financial Statements for the most recent three (3) years or Audited Financial Statements from date of existence for companies less than three years old.</p> <p>NB: The bidder must submit signed audited annual financial statements for the most recent three years, or if established for a shorter period, submit audited annual financial statements from date of establishment.</p> <p>If the bidder is not required by law to prepare signed annual financial statements for auditing purposes, then the bidder must submit proof that the bidder is not required by law to prepare audited financial statements.</p>		<p>Applicable for tenders above R10m in conjunction with MBD 5)</p> <p>Are Audited financial statements provided (Audited financials must be signed by auditor) Or proof that the bidder is not required by law to prepare audited financial statements.</p>
<p>g) Joint Ventures (JV) – (Only applicable when the bidder tenders as a joint venture) Where the bidder bids as a joint venture (JV), the required or relevant documents as per (a) to (f) above must be provided for all JV parties. In addition to the above the bidder must submit a Joint Venture (JV) agreement signed by the relevant parties.</p> <p>NB: It is a condition of this bid that the successful bidder will continue with the same Joint Venture (JV) for the duration of the contract unless prior approval is obtained from the City.</p>		<p>If applicable. JV agreement provided? JV agreement complete and relevant?</p> <p>Agreement signed by all parties? All required documents as per (i.e. a to f) must be provided for all partners of the JV.</p>
h) Bidder attended a compulsory briefing session where applicable		A compulsory briefing register must be signed by the bidder.

Compulsory Returnable Documentation (Submission of these are compulsory)	Submitted (YES or NO)	Checklist (Guide for Bidder and the Bid Evaluation Committee)
		Bidders will be disqualified should they fail to attend compulsory briefing session
i) Pricing schedule (All items must be quoted for in pricing schedule and if not, all items are quoted the bidder will be disqualified). Unless the tender is awarded per item or per section where the bidder only quoted the items or sections, they are interested in.		<p>Incomplete pricing schedule results in totals being incomparable. Bidder must be disqualified.</p> <p>Bidder will be disqualified should they make corrections on the price schedule without attaching a signature or initialising thereto.</p> <p>Bidder will be disqualified should they use tippex/ correction ink, on the price schedule.</p>

5.2 STAGE 2: MANDATORY REQUIREMENTS

Note: The City reserve the right to verify the validity of the submitted documents. Invalid documentation will result in a bid being disqualified from further evaluation.

The following disqualification criteria for the specific bid/project must be indicated, which could include non-submission of the following:

- Supply a letter or letters of accreditation from the original equipment manufacturer(s) (OEM).
- Provide a certificate for a Certified Optical Fibre Installer.
- Minimum of 1 x OEM certified installer: Cabling solution to be installed by OEM certified installers - respondents to provide evidence by submitting the certifications that was obtained by their personnel.

- Independent Communications Authority of South Africa (ICASA) Electronic Communications Service (ECS) License. Proof of the ECS license to be submitted with bid response.
- Independent Communications Authority of South Africa (ICASA) Electronic Communications Network Service (ECNS) License. Proof of the ECNS licenses to be submitted with bid response.
- Proof of Public Liability to the value of R3 million or a letter of intent between the bidders and an accredited financial service provider.
- ISO 9001: 2015 - Quality Management System. The bidder must provide a copy of their valid ISO 9001 certificate as part of this submission.
- ISO 45001: 2018 - Occupational Health & Safety Management System. The bidder must provide a copy of their valid ISO 45001 certificate as part of this submission.
- The contractor must submit the following datasheets and calibration certificates:
 - Optical Time Domain Reflectometer (OTDR) instrument and splice machine technical specification/datasheet.
 - Calibration certificate for the OTDR and splice machine as verified by a National Calibration Service (NCS) approved facility.
- OHS officer: Bidders are required to submit a valid OHS certificate and Curriculum Vitae with a minimum of two years' experience.
- The minimum skills/qualification level expected of all technical personnel required is 2 years' relevant experience and Curriculum Vieta's of the below listed personnel must be submitted as part of the tender submission. Only certified professionals, on the highest possible certification from the OEM, are allowed to configure data equipment. The following are considered as key personnel and therefore the minimum requirement:
- **Project Manager: (1 x Project Manager)**
 - Minimum requirement is an appropriate tertiary qualification or relevant certification/accreditation (as recognized by the South African Qualifications Authority SAQA) and at least 2 years of experience. In addition, ITIL certification is required.
- **Radio Technician (Minimum 4 x Radio Techs):**
 - A National Diploma or B-Tech in Electronic Engineering, Telecommunications, or related field at least 2 years of experience.
- **Network Technician (Minimum 4 x Network Techs):**
 - Network + Certification
 - Relevant OEM Certifications on Data Equipment with at least 2 years of experience.
- **Network Engineer (Minimum 4 x Radio Techs):**
 - Skills should range from Field Engineers to System Experts with at least 2 years of experience. Only OEM certified professionals are allowed to configure data/radio equipment. This must also include Network Engineers to maintain the current infrastructure, mostly Mikrotik, Ruckus, Ubiquiti, Huawei, Tough Switch and Powerbeam.
- **Security Engineer (1 x Security Engineer)**
 - A bachelor's degree in computer science, information technology, or a related field is required at least 2 years of experience.
 - Security Certifications: Relevant certifications like CompTIA Security+, Certified Ethical Hacker (CEH), or vendor-specific certifications (e.g., Check Point certifications) are required.

Note: The City of Tshwane reserves the right to confirm validity of the documents submitted, any invalid documents will result in the disqualification of the bid from further evaluation.

5.3 STAGE 3: FUNCTIONALITY CRITERIA

Bidders complying with ALL the requirements on stages 1 and 2 will be evaluated against the Functional Evaluation Criteria as set below. Bidders must score 70 points or more out of a total 100 points allocated for each section of the below Functional Criteria, as well as in the overall count for all 3 sections together. Bidders that score less than 70 points will be disqualified and will not be evaluated further.

CRITERIA	SUB-CRITERIA	SCALE	WEIGHT	HIGH POSSIBLE SCORE
Deployment Experience Collective and Overall kilometres of fibre (not counting OPGW installations) (Optical Ground Wire) deployed by the bidder. Required documents: This must be supported by a signed referral completion certificate of a previous employer on company letterhead. The referral certificate must indicate the number of kilometres installed or maintained.	<ul style="list-style-type: none"> • 101 and above Kilometres of Fiber • 51 To 100 Kilometres of Fiber • 1 To 50 Kilometres of Fiber. 	5 3 1	5	25
Wi-Fi Deployment experience The bidder must provide proof of Wi-Fi sites deployed and completed. This must be in the form of signed reference letters by the client concerned on the organisation's letterhead with contactable numbers.	<ul style="list-style-type: none"> • 750 sites and above • 500 - 749 sites deployed • 250 - 499 sites deployed 	5 3 1	5	25

Company experience and references relevant to the implementation and maintenance of both fibre and UTP. Prior experience in supply, delivery, Installation, Testing, Commissioning, Repair of Optical fibre cables inclusive of optical ground wire (OPGW) on 132kV, similar-to the scope of work Required documents: Bidders are required to Provide signed reference letter or completion certificates for OPGW work in the previous employer's letterhead with contactable details.	more than 3 years more than 2 years to 3 years more than 1 year to 2 years	5 3 1	5	25
Company experience and references relevant to the implementation and maintenance of UTP, fibre and Wi-Fi. The bidder must provide proof of its experience level on similar size networks as the City has deployed. This must be in the form of a signed reference letters by the previous employers on the organisation's letterhead with contactable numbers.	<ul style="list-style-type: none"> • Three reference letters • Two reference letters • One reference letter 	5 3 1	5	25
Total				100

5.4 STAGE 4: PREFERENCE POINT SYSTEM

The preferential point system used will be the 90/10 points system in terms of the Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000) Regulations 2022.

90 points for price
 10 points for Specific goals

SPECIFIC GOALS

- Bidders are required to submit supporting documents for their bids to claim the specific goal points.
- Non-compliance with specific goals will not lead to disqualification but bidders will not be allocated specific goal points. Bidders will score points out of 90 for price only and zero (0) points out of 10 for specific goals.
- Cot shall act against any bidder or person when it detects that the specific goals were claimed or obtained on a fraudulent basis.

Specific goals	90/10 preference point system	Proof of specific goals to be submitted
BB-BEE score of companies <ul style="list-style-type: none"> • Level 1 • Level 2 • Level 3 • Level 4 • Level 5 • Level 6 • Level 7 • Level 8 • Non-compliant 	<ul style="list-style-type: none"> • 4 Points • 3.5 Points • 3 Points • 2.5 Points • 2 Points • 1.5 Points • 1 Point • 0.5 Points 0 Points 	Valid Certified copy of BBBEE certificate. Sworn Affidavit for B-BBEE qualifying small enterprise or Exempt Micro Enterprises or CIPC BBBEE certificate.
EME and/ or QSE	1 Point	Valid Sworn affidavit for B-BBEE qualifying small enterprise or Exempt Micro Enterprises or CIPC BBBEE certificate
At least 51% of Women-owned companies	1 Point	Certified copy of Identity Document/s and proof of ownership (Sworn affidavit for B-BBEE qualifying small enterprise or Exempt Micro Enterprises, CIPC registration or any other proof of ownership)
At least 51% owned companies by People with disability	1 Point	Medical Certificate with doctor's details (Practice Number, Physical Address, and contact numbers) and proof of ownership (Sworn affidavit for B-BBEE qualifying small enterprise or Exempt Micro Enterprises, CIPC registration or any other proof of ownership)
At least 51% owned companies by Youth	1 Point	Certified copy of Identity Document/s and proof of ownership (Sworn affidavit for B-BBEE qualifying small enterprise or Exempt Micro Enterprises, CIPC registration or any other proof of ownership)
Local Economic Participation <ul style="list-style-type: none"> • City of Tshwane • Gauteng • National 	2 Points 1 Point 1 Point	Municipal Account statement/Lease agreement.

6. CONDITION OF A CONTRACT

The winning bidder is required to submit the following prior to the signing of the contract.

COIDA (Compensation for Occupational Injuries and Diseases Act) Certificate: Certificate of good standing from the Labor Department of South Africa.

7. TYPE OF AGREEMENT REQUIRED

ICT tenders, as with this tender has an SLA provided for in the tender. This is provided for in Part E of the tender wherein a service relevant SLA per section of the tender is required. As this tender consists of 3 different aspects of cellular services to be provided to Council, each section (Service) has its own unique relevant SLA applicable to it provided for in the detailed Bid Specifications

8. VALIDITY PERIOD

The validity period for the tender after closure is 90 days. The city shall have right and power to extent any tender validity period beyond any initial validity period set and subsequent extensions. SCM shall ensure that an extension of validity is requested in writing from all bidders before the validity expiry date. Extension of validity shall be finalised while the quotations/bids are still valid.

9. MARKET ANALYSIS

The City of Tshwane reserves the right to conduct a market analysis. Should the City exercise this option, where a service provider offers a price that is deemed not to be viable to supply goods or services as required, written confirmation will be made with the service provider to determine if it will be able to deliver on the price. If a service provider confirms that it cannot, the service provider will be disqualified based on being non-responsive. If the service provider confirms that it can deliver, a tight contract to mitigate the risk of non-performance will be entered into with the service provider.

Further action on failures by the supplier to deliver will be handled in terms of the contract, including performance warnings and listing on the database of restricted suppliers. The City of Tshwane further reserves the right to negotiate a market-related price with the service provider that scored the most points. If the service provider does not agree to a market-related price, the City reserves the right to negotiate a market-related price with the service provider that scored the second-most points. If the service provider that scored the second-most points does not agree to a market-related price, the City will negotiate a market-related price with the service provider that scored the third-most points. If a market-related price is not agreed, the City reserves the right to cancel the tender.

10. DRAFT SERVICE LEVEL AGREEMENTS

The draft SLA per section of this tender is provided for in the Tender Specifications. Specification to be accompanied by draft service level agreements, as is provided for in the tender documents and eventual service providers submissions to Council.

PRICING SCHEDULE

PRICING SCHEDULE

All Municipality Bidding Documents (MBD) FORMS/FORM OF CONTRACT. The material and equipment to be acquired on this tender will be as per the attached pricing schedules. During the previous evaluation of this tenders pricing schedules, the physical evaluation of the prices as provided on the written schedules, took an inordinately long time, and delayed the evaluation process, and the eventual approval thereof by Council.

It was thus decided by the then BSC that all pricing must be provided by way of locked spreadsheet wherein the Service Provider (Tenderer) can then only add the pricing with the formulas and totals being locked as to prevent price manipulation and price tampering. This would ensure that the SP(T)'s total pricing provided be a true reflection of the pricing per item and per total.

This will ensure that the per price evaluation be done much quicker, more accurate and the most advantageous solution in terms of technical viability and pricing be decided on and awarded.

The prospective bidder must carry the sub-totals from the spreadsheet pricelist summary to the pricelist summary in the tables below.

SUMMARY PRICE SCHEDULE

The detailed pricing is as per the electronic spreadsheet to this tender.

The pricing schedules is in the form of a locked spreadsheet, wherein the bidder must provide their per item cost.

The sub-total summary from the spreadsheet price schedule must be brought forward by the bidder and the totals contained therein must be completed in the below summary schedule in black ink pen.

Bidders must printout the completed excel pricing schedule spreadsheet and attached it with the tender document submission.

The below summary must be written in black ink pen.

SUMMARY PART 1:

INSTALLATION AND MAINTENANCE OF NETWORK AND TELEPHONE POINTS

Item	Description	Subtotal Excl. VAT
1.1	UTP Daily Installations and Maintenance	
1.2	UTP Cabling Items	
1.3	UTP Trunking Items	
1.4	Electrical	
1.5	Raised Access Flooring	
1.6	UTP Testers and Labelling	
	Subtotal Excl. VAT	

SUMMARY PART 2: FIBER PRICE SCHEDULE

Item	Description	Subtotal Excl. VAT
2.1	Fiber	
2.2	Long Span ADSS and OPGW	
2.3	Micro Duct	
2.4	Civil Work	
2.5	Safety	
2.6	Data Centre Fiber	
2.7	Testing	
2.8	Fiber Testers and Tools	
	Subtotal Excl. VAT	

SUMMARY PART 3: WI-FI

Item	Description	Subtotal Excl. VAT
3.1	Equipment List	
3.2	Security/Back-up Power	
3.3	Software	
3.4	Internet	
3.5	Resources	
	Subtotal Excl. VAT	

Item	Description	SUB-TOTAL
PART 1:	INSTALLATION AND MAINTENANCE OF NETWORK AND TELEPHONE POINTS	
PART 2:	FIBER PRICE SCHEDULE	
PART 3:	WI-FI	
SUBTOTAL (EXCLUSIVE OF VAT)		
VAT		
TOTAL BID PRICE		
(This must correlate with the electronic pricing schedule as provided to the bidders with the tender specification).		

SECTION 1: PURPOSE AND SCOPE

SECTION 1: PURPOSE AND SCOPE

1.1 Purpose

The City of Tshwane (CoT) is dependent on Information and Communication Technology (ICT) in almost every segment of its operations. However, business processes that depend on IT are only as reliable and sustainable as the underlying ICT infrastructure. In order to better align business requirements with ICT capabilities and deliver ICT capabilities at an appropriate cost, CoT management is shifting from an ICT technology focus to an ICT service model approach.

Tenderers are invited to submit a proposal to the City of Tshwane (CoT) to provide such hardware and support services to ensure reliable functioning and sufficient capacity exist for all the CoT communication infrastructure. The purpose of this document is to:

- Provide the prospective Vendor with sufficient information to understand and respond to the requirements.
- Ensure that comparable information is obtained from Vendors.
- Provide a structured framework for the subsequent quantitative and qualitative evaluation of proposed solutions.

Contractual period will be for **three years** with a **warranty period of one year** on all equipment. Warranty kick-off date shall be the installation date of the equipment and not the delivery date.

1.2 Scope

To provide and maintain the CoT network and telecoms infrastructure needed to extend the current network and to maintain and improve the current network.

The following technical specifications is included:

- **Network and Telephone Points:** This part entails the installation of network- and telephone points and could either be daily points needed throughout the City or the provision of cabling in new buildings, re-wiring of existing buildings due to changes etc.
- **Maintenance and Repair of Fiber:** This part entails the repairs of broken fiber as well as the maintenance of fiber networks.
- **Public Wi-Fi:** The maintenance and installation of public Wi-Fi hot spots.

SECTION 2: THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE MAINTENANCE OF THE FIBER NETWORK

SECTION 2.1: GENERAL SPECIFICATIONS

SECTION 2.1: GENERAL SPECIFICATIONS

2. GENERAL SPECIFICATIONS

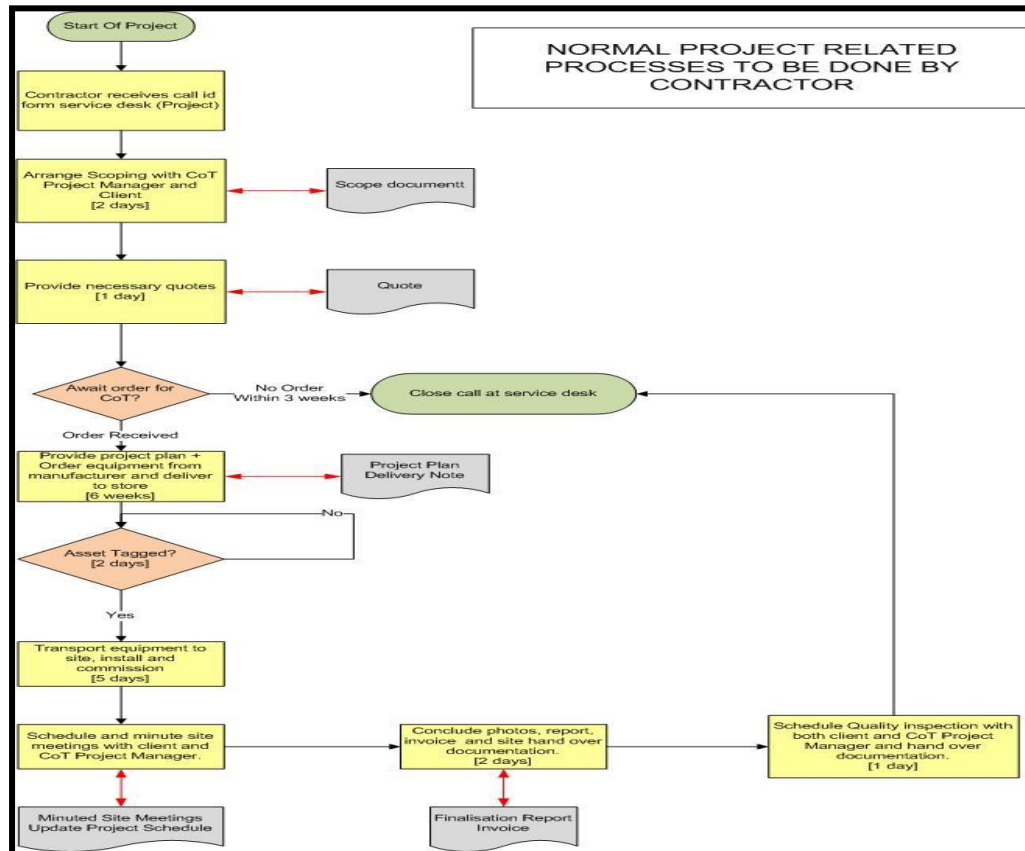
2.1 Applicability

General specifications are applicable to all the parts of the Tender.

2.2 Projects

The contractor will be required to work with the network-voice team on projects which normally involve the connection of sites via fiber to the existing CoT network. The contractor shall also patch the users on the switch (patch cables will be supplied by others) and also ensure that every user is connected to the network before signing off on the site. Patching shall be done neatly and a quality inspection will be done by CoT personnel before payment will be made for a specific site. Detailed project role out plans must be supplied as to manage the process from start to finish. As soon as the project is completed, a final Project Close-Off Report must be submitted to Council by the approved Service Provider Project Manager, within 2 weeks from the go-live to officially hand the site over to relevant Director responsible for ICT infrastructure in Council to allow for the official hand-over to the maintenance teams.

The process is described in the flow chart below, mainly to give an indication of the process but also to list the required documents and to indicate the time frames associated with this. The process can be changed by CoT at any time during the contractual period to incorporate additional requirements or changes.



2.3. Overview Of Current CoT Data Backbone Infrastructure

The current deployed Voice and Data infrastructure is summarized below.

Network General Information

Key facts:

Number of Users:	12 000 (Data) + 14 000 (Voice Users)
Total Switches:	±840
Nr of ports:	±21 000
Nr of buildings connected:	±370 buildings
LAN ranges:	10/100Mb, 1000 Mb, 10Gig
LAN types:	Multimode & Single-Mode fiber, UTP Cat 5e, Copper 10, Cat 6, Cat 6A
WAN ranges:	64 kbps, 128 kbps, 512 kbps, 2 Mb, 4 Mb, 11/300Mb, 1000 Mb, 10 000 Mb, 10 Gig
WAN types:	Diginet, ISDN, Wireless Radio, Gigabit Ethernet, 10 Gig Ethernet
Corporate Wi-Fi:	Deployed at various CoT buildings inclusive of larger installations at Midtown, Tshwane House and smaller installations such as conference rooms and libraries.

2.4. Technical Support Staff and Skills

2.4.1 General

2.4.1.1 Skill Requirements

Only certified professionals will be allowed to work on the infrastructure. If CoT deems it necessary, it will request a replacement resource if any resource is not performing according to expectations.

2.4.1.2 Working Hours and Availability

Working hours for Tshwane is from 7:30 to 16:00. Prices must however include for the overtime requirements, not only for the implementation of projects but also should maintenance issues arise.

Where personnel need to take annual leave or training courses, suitable back-up arrangements must be made to ensure continuity of services. The replacement resource must still be available on site.

2.4.1.3 Standby/Overtime

To ensure service coordination, a roster will be set up for three (3) months in advance for resource planning. At least one team must be on standby after hours, on public holidays and over weekends. Name and contact detail of the persons on standby must be available at all times.

After hour, weekend and public holiday support will be determined by need to resolve issues and problems and to execute planned activities. This support needs to catered for and, as with standby, provided for by the contractor as per contracting company's HR policy.

In an event of a failure or maintenance issue, the standby person will be notified and must respond in terms of the SLA (Service Level Agreement) contained within this document.

2.4.1.4 Reporting Levels and Communication Protocol

The following applies:

- All resources and project managers to report directly to the CoT Director Infrastructure or approved representative responsible for the Networks/Telecommunications services and/or their appointed representative.
- All resources and project managers will adhere to all requests and ad hoc tasks issued to them.
- Project managers\installation and maintenance teams\all other onsite resources of the contractor to interact with project managers of the CoT.
- All reports on SLA issues to be reported directly to the Director or approved representative.
- All Departmental requests for infrastructure and services to be referred to the applicable CoT Director (or approved representative), as body responsible for all related projects.
- All personnel to adhere to the communication protocol. The communication protocol is via the appointed CoT Director responsible for the Networks/Telecommunications services. All requests for infrastructure or services will be via this office. Under no circumstances shall a contractor give feedback to any director but the CoT Director responsible for Infrastructure (or appointed representative). Contractors shall not set up / attend meetings with other directors, or represent ICT in any form or meeting unless express permission was granted, and shall adhere to CoT procedures at all times.

2.4.1.5 ISO

All activities need to be planned and executed as per ISO practices and in accordance with CoT ISO processes.

In a project setup, communications must be via the project managers. If, however, the project managers and team cannot agree, both parties can escalate the matter to ICT Management for final decision.

2.4.1.6 Meetings and Presentations

The contractor will be required to schedule and minute a bi-weekly (fortnightly) meeting with the CoT. The following must be standing discussion points:

- Reporting on complaints i.e. complaints received and scheduling information etc
- Reporting on status of projects

The contractor may also be required to attend ad hoc meetings as and when required (for example project meeting with the client CoT). From time-to-time, the contractor will be required to either present or prepare a presentation for Top Management.

2.4.2. Reporting And Documentation

The following documentation is a requirement:

- Monthly network reports reporting on projects and maintenance.
- Weekly maintenance feedback reports
 - o Inclusive of all historical complaints
 - o Statistics on calls completed within SLA, out of SLA, not completed (and reasons for not completing)
- Weekly progress schedules.
- Update all network related architecture for example network drawings
- Technical Architectural Specifications
- Functional Specifications
- Presentations
- Quotes
- Project Plan (+associated project manager) for every project
- Minutes of meetings
- All related documentation that might be listed in this Tender
- Any ad hoc documentation as required from time-to-time.

The CoT does have a service desk, but it remains the responsibility of the contractor to collect the necessary data with regards to maintenance calls and projects. Also note that all calls and projects must be logged at the CoT service desk.

2.4.3 Additional Requirements

2.4.3.1 Drawings and Project Templates

Drawings must be updated regularly. After every project or change, the fiber- and UTP drawings must be updated to reflect the necessary updates/changes.

2.4.3.2 Workload

Should CoT determine that the work load is strenuous, it will inform the contractor to deploy additional teams with immediate effect. This cost must be included in the labor charges quoted in the schedules.

2.4.3.3 Test Equipment

It is the responsibility of the contractor to issue test equipment to the required resources. The following equipment is mandatory and must be on site 24/7:

- OTDR
- Cable testers to test UTP cabling minimum level 4 certification tester.
- Wireless fault tracing tools
- Voice Technical Repair Tool Sets

It is the successful tender's responsibility to provide all tools and test equipment and to ensure that the equipment is maintained and calibrated according to manufacturer's standards. The contractor shall employ or contract suitably qualified and trained personnel to provide the Services to Tshwane in terms of this agreement. The personnel must be certified and under no circumstances will Tshwane be used as a training facility.

Costing related to test equipment must be included in the support costs. After conclusion of the contract, the test equipment will remain the property of the contractor.

2.5 Pricing And Pricing Schedules

2.5.1 Invitation

Please note that this is a mere invitation to do business and under no circumstances whatsoever shall it be construed as an "offer" giving rise to any contractual obligations on the part of the CoT. The City of Tshwane shall not be bound to accept the proposal submitted by the contractor and reserves the right to accept the whole or part of the said proposal. The CoT further reserves the right to negotiate and/or renegotiate, whichever is applicable, the terms and conditions and quantities of the proposal.

2.5.2 Total Cost Of Ownership [TCO]

A cost proposal is required to be prepared as part of the response. The CoT procurement initiatives are centered on the TCO approach and want vendors to take cognizance of this and assist the CoT in driving down the total cost by considering all the cost drivers making up the component cost.

2.5.3 Pricing Schedules

The cost proposal must be submitted in soft copy (Excel Spreadsheet) that will be made available on a universal accessible directory on Council's web page. The spreadsheets will be compiled in such a way that all of the cells will be locked except for those that the Service Provider/Tenderer will complete for inclusion in their submission to Council. These files must be copied from Council's Web page and completed by the SP/T and submitted on a flash drive to Council. This will greatly speed up the evaluation process and will ensure that price manipulation will not be possible.

These pricing totals must then be completed by the SP/T in their submission to Council. Care must be taken that the prices gotten from their electronic files, be correct and not contradict each other. Should this happen it will be grounds for cancellation of the tender. The electronic schedule is required to assist the Tender Evaluation Team to expedite price evaluation.

Some of these items listed and requested might have already or will soon be reaching their product end of life date. Should a tenderer become aware of this, please provide the pricing for requested equipment, also indicate that the equipment has reached its EOL statement, or soon will be.

2.5.4 Inclusion Of All Costs

The Contractor shall be deemed to have satisfied himself before submitting his tender as to the correctness and sufficiency of the tender and to have taken account of all that is required for the full and proper execution of the contract and to have included in his rates and prices all costs related to the supplies. The prices quoted/tendered must include for handling, packing, loading, transport, delivery, off-loading, transit, shipping, checking, travel, accommodation, subsistence, installation, configuration, commissioning, insurance, administrative costs (such as documents and manuals required), execution, supervision, furnishing of tools required for assembly, extraordinary and/or any other cost.

In other words, the CoT will not entertain any claims for additional costs. Price must include for all requirements as stipulated in this document.

2.5.5 Submission of Quote

All costs incurred in the submission of the quote shall be for the account of the vendor, whether such quote is successful or not.

2.5.6 Quantities

CoT reserves the right to reduce or increase the quantities of items without any change in unit cost (It must be noted that the quantities provided for and requested in the pricing schedules is only for evaluation purposes and NOT for ordering purposes).

2.5.7 Delivery Penalty Clause

If supplier fails to deliver, install and commission any or all of the infrastructure within the period specified in the contract, CoT shall, without prejudice to its other remedies under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 1% of the value of the delayed goods per week of delay until actual delivery up to a maximum deduction of 10 % of the contract sum. Once the maximum is reached, CoT may consider the termination of the contract. Notwithstanding the above, CoT may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, terminate this contract in whole or in part:

- if the supplier fails to deliver any or all the goods within the period specified in the contract or within any extension thereof granted by CoT;
- or if the supplier fails to perform any other obligation(s) under the contract.

2.5.8 Quote All Items

The bidder should quote/tender on all the items as listed in the attached Item Price List. No omissions will be accepted as it will seriously compromise the evaluation process as the total quoted price per Service Provider will then not be equitable to one another. Incomplete quotations not providing all item prices are grounds for summary dismissal with no recourse from the SP to contest or later provide outstanding item prices.

2.6 General Conditions

2.6.1 Authorized Representative: The bidder must be a reputed manufacturer or his authorized representative of the product offered. In case of representative, the authority from the manufacturer/distributor must be submitted. The bids received without authority are liable to be rejected.

2.6.2 Language: The offers, all correspondence and documents related to the tender exchanged by the tenderer and the Contracting Authority must be written in the language of the procedure which is English.

2.6.3 Ethics: Any attempt of negotiation direct or indirect on the part of the tender with the authority to whom he has submitted the tender or authority who is competent finally to accept it after he

has submitted his tender or any endeavor to secure any interest for an actual or prospective tenderer or to influence by any means the acceptance of a particular tender will render the tender liable to be excluded from consideration.

Any attempt by a candidate or tenderer to obtain confidential information, enter into unlawful agreements with competitors or influence the committee or the Contracting Authority during the process of examining, clarifying, evaluating and comparing tenders will lead to the rejection of his candidacy or tender and may result in administrative penalties.

When putting forward a candidacy or tender, the candidate or tenderer shall declare that he is affected by no potential conflict of interest and has no equivalent relation in that respect with other tenderers or parties involved in the project. Should such a situation arise during execution of the contract, the Contractor must immediately inform the Contracting Authority.

The Contractor must at all times act impartially and as a faithful adviser in accordance with the code of conduct of his profession. The Contractor shall refrain from making public statements about the project or services without the Contracting Authority's prior approval. The Contractor may not commit the Contracting Authority in any way without its prior written consent.

For the duration of the contract the Contractor and his staff shall respect human rights and undertake not to offend the political, cultural and religious mores of the beneficiary state.

- 2.6.4 **Confidentiality:** The information contained in this RFP document, or provided by management or staff of The City of Tshwane, is solely for the purpose of providing Vendors with information on which to submit their proposals. It is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged information and material. Any review, retransmission, dissemination or other use of, or taking of any action, in reliance upon this information by persons or entities other than the intended recipient, is prohibited. Recipients of this document shall respect the confidentiality of the information contained herein together with any other information obtained during the course of the RFP process.

The Contractor and his staff shall be obliged to maintain professional secrecy for the entire duration of the contract and after its completion. All information, reports and documents drawn up or received by the Contractor shall be confidential. The contractor shall not, save in so far as may be necessary for the purposes of the contract's execution, publish or disclose any particulars of the contract without the prior consent in writing from CoT. If any disagreement arises as to the necessity for any publication or disclosure for the purpose of the contract, the decision of CoT shall be final.

- 2.6.5 **Laws and Regulations:** The Contractor shall respect and abide by all laws and regulations in force in South Africa and the by-laws and regulations of CoT and shall ensure that his/her personnel, their dependents, and his/her local employees also respect and abide by all such laws and regulations. The Contractor shall indemnify CoT against any claims and proceedings arising from any infringement by the Contractor, his/her employees and their dependents of such laws and regulations.

The successful tenderer will be required to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended. Further information in this regard may be obtained from the Mr D B Finaughty at Occupational Health and Safety, telephone number (012) 358-0069.

- 2.6.6 **Extension of Period of Implementation:** The Contractor may request an extension to the period of implementation if his implementation of the contract is delayed, or expected to be delayed, for any of the following reasons:

- a) Extra or additional supplies ordered by CoT
- b) Exceptional weather conditions which may affect installation of the supplies;

- c) Physical obstructions or conditions which may affect delivery of the supplies, which could not reasonably have been foreseen by a competent contractor;
- d) Failure of the CoT to fulfil its obligations under the contract;
- e) Any suspension of the delivery and/or installation of the supplies which is not due to the Contractor's default;
- f) Force majeure;
- g) Any other causes referred to in these General Conditions which are not due to the Contractor's default.

Within 15 days of realizing that a delay might occur, the Contractor shall notify the Project Manager of his intention to make a request for extension of the period of implementation to which he considers himself entitled and, save where otherwise agreed between the Contractor and the Project Manager, within 30 days provide the Project Manager with comprehensive details so that the request can be examined.

The Project Manager will submit the written request for approval and within 30 days CoT shall, by written notice to the Contractor after due consultation with the necessary authority and, where appropriate, the Contractor, grant such extension of the period of implementation as may be justified, either prospectively or retrospectively, or inform the Contractor that such extension was not granted.

- 2.6.7 **Trademark:** In certain instances, where a reference has been made to a specific make or source, process, trademark, patent or product type, the reference is made only to describe a type of product classification (and all of its equivalents) for which no universally approved industry standard, benchmark or other sufficiently detailed or intelligible description is available at the time of the issuance of the procurement notice. In any and all such instances, the tendering party and the Contracting Authority shall interpret such a description as inclusive of any equivalent (or better) and the Contracting Authority shall accept for evaluation and procurement purposes as "compatible" any specification which is equivalent or better, irrespective of the actual nomenclature used by the tendering party.

- 2.7 **Non-Disclosure Agreement:** The contractor will be required to sign the CoT Non-Disclosure Agreement when appointed.

SECTION 2: THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE MAINTENANCE OF THE FIBER NETWORK

SECTION 2.2: THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS

SECTION 2.2: THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS

3.1 SCOPE AND WORK PROCEDURES

The Tender Specification is for the City of Tshwane (CoT), and installations shall be delivered as contracted with the successful Tenderer/s. The city also reserves the right to appoint a company as sole service provider on this tender or award it to multiple service providers. A service level agreement (SLA) forms part of this tender document.

- UTP Cabling for Data and Telephone, new installations, support and maintenance
- SLA included as part of the document.

The Tenderers

Must have been in operation for at least two years.

Must at least have two reputable references in the region of Gauteng of similar work performed.

Must be Commscope (Krone) Accredited (Most of the current UTP existing systems at CoT are Commscope (Krone) manufactured).

3.2 RELEVANT ACT, REGULATIONS AND STANDARDS

The whole of the installation shall comply and the work shall be executed in accordance with the latest edition of the following:

- A The Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Act or the Construction Industry Safety Regulation Act, 2000 (Act No 38 of 2000) and as amended, whichever is applicable and their respective Regulations;
- B Relevant SABS standards document with the latest amendments, issued by the South African Bureau of Standards;
- C The regulations and by-laws of the City of Tshwane;
- D The NQF Level 3 standard, the ISO9001, ISO19011, ISO1401 and OHSAS18001
- E The local CoT Fire Department Regulations;
- F The applicable regulations of the relevant telecommunication authority (ICASA);
- G The relevant SABS, BS NRS and IEC and ISO supporting specifications referred to in this document.

3.3 SAFETY

The contractor shall be responsible for maintaining safe conditions on site and shall bear all responsibilities in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Construction Industry Safety Regulation Act, 2000 (Act No 38 of 2000) whichever is applicable.

The contractor shall be responsible for supplying and installing the required safety signs as determined by the Occupational Health and Safety Act, 1993 (Act No85 of 1993) and the regulations promulgated in terms of the Construction Industry Safety Regulation Act, 2000 (Act No 38 of 2000), whichever is applicable, both during the implementation/construction phase and for the completed works.

All safety signs shall comply with the requirements of the latest edition of SABS 1186 as applicable.

The successful contractor must complete the attached “**OCCUPATIONAL HEALTH AND SAFETY AGREEMENT FOR CONTRACT WORK IN THE CITY OF TSHWANE**” immediately after notification that the tender was successful. No work shall commence until this manual has been completed.

The contractor shall have a registered electrician available conducting all electrical work. A certificate of compliance must be issued for each completed job. **Compliance must be indicated on the tender.**

3.4 QUALITY OF MATERIALS AND WORKMANSHIP

All material and equipment shall conform in respect of quality, manufacture, tests and performance, with the relevant requirements of the South African Bureau of standards or where no such standards exist, with the relevant current specification of the British Standards Institution and/or relevant IEC and/or ISO publications and/or Commscope (Krone) Specifications.

All material and equipment shall be suitable for the conditions on site. These conditions shall include weather conditions as well as conditions under which materials are installed, stored and used. Should the materials not be suitable for use under temporary site conditions then the contractor shall at his own cost provide suitable protection until these unfavorable site conditions cease to exist.

The contractor shall, were requested to do so, submit samples of equipment and material to the CoT representative for approval prior to installation. The CoT representative may retain these samples until the contract is completed after which they will be returned or paid for if damaged or lost during the contract period.

To ensure quality, a list of products is specified within this document. Mix and match options are not considered, the whole link excluding patch and fly leads must be of one product type for example: Commscope (Krone).

The contractor must appoint a quality controller to ensure that workmanship is at all times up to standard.

3.5 MEETINGS

The contractor will be required to schedule and minute a bi-weekly (fortnight) meeting with the CoT. The following must be standing discussion points:

- Reporting on complaints i.e. complaints received and scheduling information etc
- Reporting on project progress
- Reporting on any issues experienced
- Reporting on any project risks

The contractor may also be required to attend AdHoc meetings as and when required (for example project meeting with the client CoT) before and after contract awarding.

3.6 QUALITY CONTROL

The contractor will be responsible for quality control and must ensure that all standards are adhered to.

3.7 UTP CABLE SPECIFICATION

3.7.1 UTP Cable Type

- Commscope (Krone) approved UTP Cables may be used for installations.
- Copper Link: Material used must comply with the specifications of ISO 11801 class D standards (UTP). The specification describes the cabling installation between the two interfaces.

3.7.2 Maximum Length

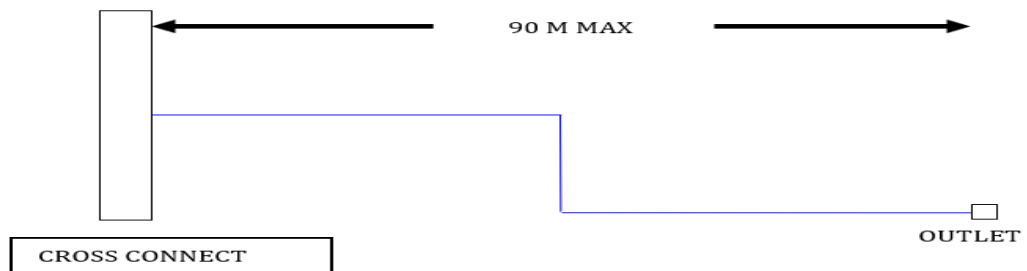
The maximum length of a basic link UTP Cable, between the cross-connect (cabinet or frame) and a RJ45 outlet may not exceed 90m.

The maximum length of a channel link UTP Cable, including patch & fly leads may not exceed 100m.

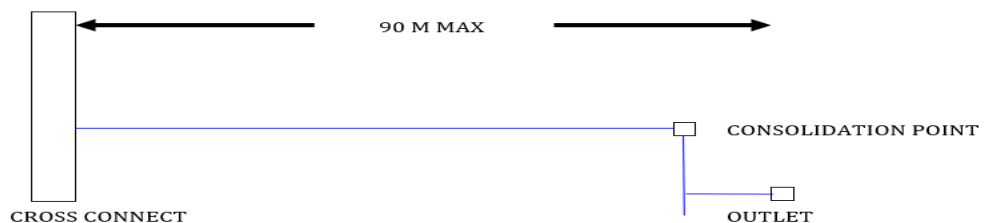
A consolidation point may be within the specified 90m, but must be at least 15m away from either the cross connect and the outlet.

Any horizontal UTP Cable exceeding the maximum length will not be certified.

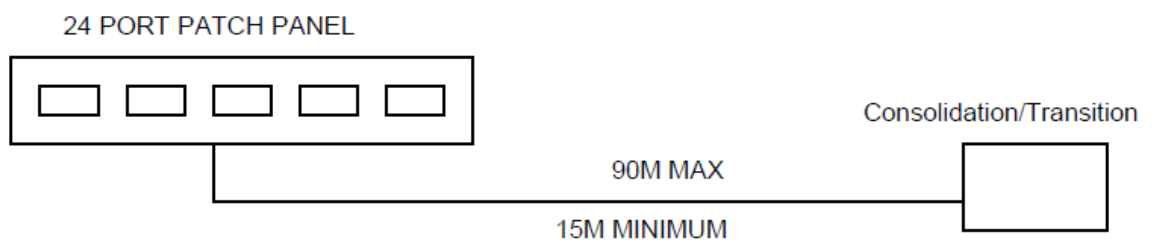
CROSS CONNECT TO OUTLET



CONSOLIDATION POINT



PATCH PANEL TO CONSOLIDATION/TRANSITION POINT



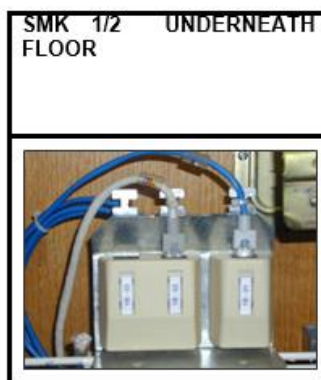
3.7.3 Bend Radius

The maximum bend radius of a category 5E and category 6 UTP Cables on any point of a length of UTP Cable is 8 times the diameter of the UTP Cable.
UTP Cables may not exceed the maximum bend radius.

CORRECT BEND RADIUS



WRONG BEND RADIUS

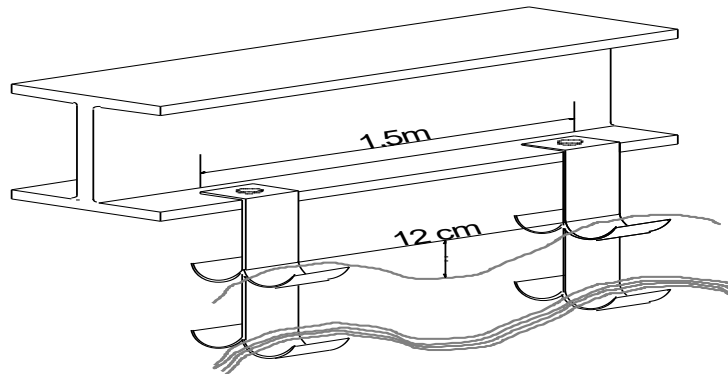


Suspension and Looming

- No more than 24 UTP Cables may be in a bundle or loom.
- UTP Cable bundles and looms must be cable tied together every 300mm where visible.
- Cable ties may not be over tight so that it may damage the UTP Cable, after fastening.
- One should still be able to move the cable tie.
- No UTP Cables may lie on a ceiling. Should there be existing UTP Cable trays and or baskets make use of that infrastructure.
- UTP Cables above ceiling height must be suspended from the roof every 1.5m.
- Sag of not more than 120mm must be visible on the UTP Cable between suspension fasteners.
- Communication UTP Cable and power cable must be separated by minimum distance e.g. by 300mm for UTP Cable.
- UTP Cables must follow planned routes.
- Only the use of cable baskets and J/S-hooks may be used for the horizontal cables.
- All baskets has to be labelled = Communication Cables Only.
- No cables may lie on a ceiling.
- Even the drops must be anchored and not on the ceiling or over lights.
- The tray must make a SLOW BEND at the top and bottom to avoid the cables from being damaged.
- Looms must be continued as close as possible to the High band disconnect modules on the frame.
- 3 Looms and less, install single O-Line trunking to secure looms from ceiling into cabinet.
- Use an additional O-line trunking for each 3 looms there after running into a cabinet.(Patch panels).

- 4 Looms and more, install perforated cable tray with extended plinth 600 x 400 to secure cables at the back of the cabinet (active frames).

CABLE SUSPENSION AND VISIBLE SAG



3.7.4 Damaged UTP Cables

- The use of any damaged UTP Cables is unacceptable.
- At no point on a length of UTP Cable may the outer PVC sheathing be damaged or cut.
- All holes in power skirting where UTP Cable passes through must be at least 8mm for any UTP to prevent any cable damage.
- All holes to be reamed. Grommet must be in place where metal has been cut.
- UTP Cables must be protected from external damage, and must be contained in an enclosure.
- UTP Cables should not be exposed.
- Any damaged UTP Cables must be reported and replaced immediately.

3.7.5 OUTLET SPECIFICATIONS

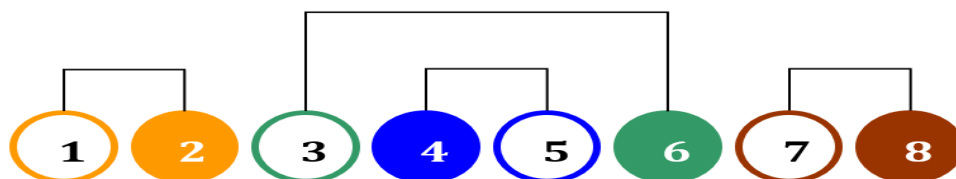
3.7.5.1 Outlet Type

- Surface mount outlets must be SMK1 or SMK2, 85x85 back boxes and face plate with HK45 degree adapters and HK Keystones (white).
- Flush mount outlets must be 50x50 trunking frame together with HK 45 degree Adapter, HK Keystone (white) with 25x50 blank if needed.

3.7.5.2 Termination

- Outlets must be terminated to the EIA/TIA 568 B wiring scheme for category 56 UTP Cable.

EIA/TIA 568 B STANDARD



- No additional twists may be added or any twist on a pair removed.

- Twists must be maintained within 13mm from the termination.
- Sheathing must be maintained within 25mm from the termination.
- Contractor must make use of the palm protector when terminating.
- No more than 1m slack of UTP Cable at wall outlet.
- If possible leave 3m slack in ceiling for cabinet otherwise where indicated by ICT.
- Slack must be left neat and in looms.

3.7.5.3 Mounting

- Surface mount RJ45 outlets on skirting, dry walls and power poles must be fixed with pop rivets or flat type screws. No sharp edged screws to be used.
- Outlets mounted on a dry wall must be fixed with a positive hold behind the wall as to prevent it from coming loose.
- Flush mount RJ45 outlets must fit inside a punched hole, the hole must accommodate the outlet comfortably as to prevent it from being either too loose or being damaged.
- Outlets must be mounted correctly, and should not be susceptible to dust ingress (facing upwards).
- Outlets must be mounted sideways and all should face the same direction.
- Wall outlets should be level after mounting.
- No leads must be outside of the cabinet.

NOTE CABINET AND ENVIRONMENT LAYOUT

Typical Clean Utility Room



Patch Leads Cable Tied



Typical Swing Frame



Typical Active Passive Cabinet



3.7.5.4 Route building

- Vertical and horizontal trunking and conduit must be installed with a spirit level.
- Trunking and conduit must be anchored at regular intervals of not more than 1 meter.
- All trunking and conduit must be closed at end points.

3.7.6 CROSS-CONNECT SPECIFICATIONS FOR HIGH BAND AND BACKBONE INSTALLATION

3.7.6.1 Module Type

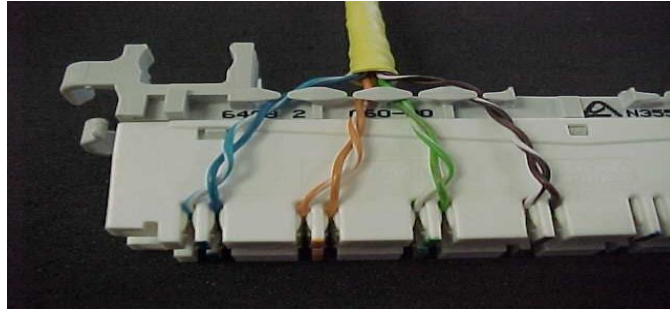
- Only modules of approved manufacture may be used.
- Pair High band disconnect modules for horizontal category 5e cabling.
- 10 Pair disconnect modules for voice multi-core backbone cables.

3.7.6.2 Termination

- Modules must be terminated with the blue position on the left starting with white in the left position and color in the right position of each slot.
- No additional twists may be added or any twist on a pair removed.

- Twists must be maintained within 13mm of the termination.
- Sheathing must be maintained up to the back of the High band disconnect module.
- Horizontal cables must be terminated at the top position of the High band disconnect module.
- No side entry will be allowed for the UTP Cable.

A CABLE TERMINATED ON A 8 PAIR HIGHBAND *DISCONNECT* MODULE



3.7.6.3 Mounting

All High band disconnect modules must be securely mounted on either an 800 frame or an active/passive Cabinet.

MODULE ON A 800 FRAME



3.7.6.4 Labelling

- High band disconnect module numbers must correspond to the number of the outlet.
- High band disconnect modules must be labelled with use of the High band hinged label holder.
- Only labels with a computer type print is acceptable on High band disconnect modules, labels of any other kind on a High band disconnect module is unacceptable.
- A label must be attached to the cable feeding the High band disconnect module as close to the termination as possible and not further than 50mm from the termination. The number on this label must correspond to the High band disconnect module number.

LABELLED 8 PAIR DISCONNECT MODULE





FIXED LABEL ON A FRAME



3.7.7 CROSS-CONNECT SPECIFICATION FOR PATCH PANELS

3.7.7.1 Patch Panel Type

- Only HK Keystones to be use.
- Only 16, 24, and 32 ports fully populated patch panels with black keystones to be used for horizontal and backbone UTP Cables.

PATCH PANELS MOUNTED UNDERNEATH THE FLOOR WITH UNDERFLOOR SUPPORT BRACKETS	PATCH PANELS MOUNTED UNDERNEATH THE FLOOR WITH UNDERFLOOR SUPPORT BRACKETS, WITHOUT TOP COVER.
	

3.7.7.2 Termination

- No additional twists may be added or any twist on a pair removed.
- Twists must be maintained within 13mm from the termination.
- Sheathing must be maintained within 25mm from the termination.

3.7.7.3 Power

- All units in cabinet must be powered from within the cabinet.
- No power cables must be from other cabinets or elsewhere.

3.7.8 FRAME SPECIFICATIONS

3.7.8.1 Frame type

- Only frames of manufacture may be used. Either 800 frames or Active/Passive Cabinets.

3.7.8.2 Mounting

- Please refer to the frame layout drawing.
- 800 frames mounted side by side must be bolted together.
- UTP Cable should be enclosed coming from the ceiling to prevent cable damage.
- Not more than 3m slack, preferably in the ceiling.

3.7.8.3 Looming

- Looming must be done neatly on a tray.
- No more than 24 cables in a bundle or loom.
- Trays mounted on the frame must allow for patch cables to pass through the frames.
- Looms must be continued as close as possible to the High band disconnect modules on the frame.
- Looms must be neatly secured to a tray with cable ties. Where the loom splits up to the disconnect modules, cable pairs must be cable tied with cable ties for neatness.

LOOMING ON A TRAY
TRUNKING



LOOMING ON A FRAME



LOOMING INSIDE 100 X 100



3.7.9 CABINET SPECIFICATION & LAYOUT

- For an installation to be certified the cabinet must comply with the following:
 - Cabinet size versus type, fans, power outlets, plinth/sides and earth strap.
 - Security
 - Cabinet placement.
 - Layout.
 - Patching.
 - Labelling.
 - Mounting of Outlets.

- Drawings.

3.7.9.1 Cabinet Size Versus Type, Fans, Power Outlets, Plinth/Sides and Earth Strap

Cabinet		Description
Patch/Active racks - 6U	components	6U Wall Mount Swing Frame Cabinet - 600mm wide x 600mm deep. Rack to have 1 x 5-way dedicated power distribution unit with circuit breaker and 2 fans. Enables easy rear cabinet access once mounted. Manufactured to International standards. Powder coated to protect against rust, oxidization, scratches and lacquer peeling. Front doors to be glass and cabinet to be lockable.
Patch/Active racks - 9U	components	9U Wall Mount Swing Frame Cabinet - 600mm wide x 600mm deep. Rack to have 1 x 5-way dedicated power distribution unit with circuit breaker and 2 fans. Enables easy rear cabinet access once mounted. Manufactured to International standards. Powder coated to protect against rust, oxidization, scratches and lacquer peeling. Front doors to be glass and cabinet to be lockable.
Patch/Active racks - 12U	components	12U Wall Mount Swing Frame Cabinet - 600mm wide x 600mm deep. Rack to have 1 x 5-way dedicated power distribution unit with circuit breaker and 2 fans. Enables easy rear cabinet access once mounted. Manufactured to International standards. Powder coated to protect against rust, oxidization, scratches and lacquer peeling. Front doors to be glass and cabinet to be lockable.
Patch/Active racks - 15U	components	15U Wall Mount Swing Frame Cabinet - 600mm wide x 600mm deep. Rack to have 1 x 5-way dedicated power distribution unit with circuit breaker and 4 fans. Enables easy rear cabinet access once mounted. Manufactured to International standards. Powder coated to protect against rust, oxidization, scratches and lacquer peeling. Front doors to be glass and cabinet to be lockable.
Patch/Active racks - 22U	components	22U Floor Standing Cabinet – 600mm wide x 600mm deep. Rack to have 1 x 5-way dedicated power distribution unit with circuit breaker, 4 fans, 4 Adjustable feet and castors. Powder coated to protect against rust, oxidization, scratches, lacquer peeling. Side panel can be easily assembled and disassembled from the outside. Front doors to be glass and cabinet to be lockable.
Patch/Active racks - 25U	components	25U floor standing Cabinet - 600mm wide x 800mm deep. Rack to have 2 x 5-way dedicated power distribution unit with one circuit breaker per unit, 4 fans, a 300mm cable tray installed vertically within rack for cable reticulation. Powder coated to protect against rust, oxidization, scratches, lacquer peeling. Side panel can be easily assembled and disassembled from the outside. Front doors to be glass and cabinet to be lockable. Plinth included.

Patch/Active racks - 42U	components	42U floor standing Cabinet - 600mm wide x 1000mm deep. Rack to have 2 x 5-way dedicated power distribution unit with one circuit breaker per unit, 4 fans, a 300mm cable tray installed vertically within rack for cable reticulation. Powder coated to protect against rust, oxidization, scratches, lacquer peeling. Side panel can be easily assembled and disassembled from the outside. Front and rear doors to be perforated and cabinet to be lockable. Plinth included
Patch/Active racks - 42U	components	42U floor standing Cabinet - 600mm wide x 1200mm deep. Rack to have 2 x 5-way dedicated power distribution unit with one circuit breaker per unit, 4 fans, a 300mm cable tray installed vertically within rack for cable reticulation. Powder coated to protect against rust, oxidization, scratches, lacquer peeling. Side panel can be easily assembled and disassembled from the outside. Front and rear doors to be perforated and cabinet to be lockable. Plinth included
Patch/Active racks - 42U	components	42U Floor Standing Cabinet. Deep Enclosure with Sides Black - 800mm wide x 1200mm deep. Enclosures are wide and deep to provide additional equipment clearance space or more open space for ease of access in the rear of the enclosure. 42U height to easily roll through doorways. Rack levelling feet, 4 hold down brackets, side panels, front door, rear door, roof, baying hardware. Mounting Kit Included. Front and rear doors to be perforated. Lockable front door, lockable rear door, keyed alike, lockable side panel, casters. Powder coated to protect against rust, oxidization, scratches, lacquer peeling. Compliant Standards: EIA-310-E, RoHS, UL 60950-1, REACH
Patch/Active racks - 47U	components	47U floor standing Cabinet - 600mm wide x 1200mm deep. Rack to have 2 x 5-way dedicated power distribution unit with one circuit breaker per unit, 4 fans, a 300mm cable tray installed vertically within rack for cable reticulation. Powder coated to protect against rust, oxidization, scratches, lacquer peeling. Side panel can be easily assembled and disassembled from the outside. Front and rear doors to be perforated and cabinet to be lockable. Plinth included.
Patch/Active racks – Slack Locker 47U	components	47U floor standing - 300MM X 1200 cable slack locker. Rack to have a 300mm cable tray installed vertically within rack for cable reticulation. Powder coated to protect against rust, oxidisation, scratches, lacquer peeling. Side panel can be easily assembled and disassembled from the outside. Cabinet to be lockable.

3.7.9.2 Security

- Lockable glass door, lock key nr will be provided when successful Tender is appointed.
- Lockable swing frame, lock key nr to be the same as glass door.
- Lockable and Removable sides, lock key nr to be the same as glass door.
- All doors of the cabinet must be able to close after cable installation has been done.

3.7.9.3 Cabinet Placement

- **Mounting of cabinet:**
 - Only at the space and location indicated by ICT.
 - Level.
 - Swing frame cabinets must be securely fix to the wall with 4 x raw bolts, don't mount on drywall.
 - Front glass door and at least 2 of the remaining 3 doors must be able to open more than 110 degrees.
- **Routing to the cabinet**
 - Communication and power cables must be in separate trunking and at a minimum of 300mm apart if it is plastic trunking but if metal trunking there no need for these to be apart.
 - Cabinet must be earthed to the electrical earth.
- **Power outlet to be installed in the cabinet:**
 - Wired from DB or at the inside of the nearest 220v outlet.
 - By qualified electrician.
 - To wiring standards.
 - Power extension lead must be of metal type with a trip switch.
 - The extension cable length according to the site-scoping document of the particular site.

3.7.9.4 Layout

- **Termination of UTP Cable on patch panels:**
 - UTP Cable panel to be recessed to make way for patch lead bend radius.
 - Start populating and terminating from left to right.
 - Data wiring standard = Type B.
 - Start installation by:
 - Leaving the first U open.
 - UTP Cable patch panel.
 - Brush panel.
 - Data patch panel.
 - Brush Panel.
 - Leave space if possible.
 - Brush Panel.
 - Telephone patch panel.
 - Brush panel.

Rack mountable Switch type 1U – 3U

Leave 1 st U open
Cable Panel
Brush Panel
Data Patch Panel
Brush Panel
Switch
Brush Panel
Brush Panel
Telephone Patch Panel
Brush Panel

A1	A2	A3	A4
24 Port Patch Panel with 1 x Switch	24 Port Panel with 1 x Switch and Cable Panel	24 Port Panel with < 1 x Switch	24 Port Panel with < 1 x Switch and Cable Panel
Leave 1st U open	Leave 1st U open	Leave 1st U open	Leave 1st U open
Patch Panel	Cable Patch panel	Patch Panel	Cable Patch Panel
Brush Panel	Brush Panel	Brush Panel	Brush Panel
Switch	Patch Panel	Switch	Patch Panel
	Brush Panel	Switch	Brush Panel
	Switch	Brush Panel	Switch
		Patch Panel	Switch
			Brush Panel
			Patch Panel

B1	B2	B3	B4
48 Port Panel with 1 x Switch	48 Port Panel with 1 x Switch and Cable Panel	48 Port Panel with < 1 x Switch	48 Port Panel with < 1 x Switch and Cable Panel
Leave 1 st U open	Leave 1 st U open	Leave 1 st U open	Leave 1 st U open
Patch Panel	Cable Patch panel	Patch Panel	Cable Patch Panel
Brush Panel	Brush Panel	Brush Panel	Brush Panel
Switch	Patch Panel	Switch	Patch Panel
Brush Panel	Brush Panel	Brush Panel	Brush Panel
Patch Panel	Switch	Patch Panel	Switch
	Brush Panel	Patch Panel	Brush Panel
	Patch Panel	Brush Panel	Patch Panel
		Switch	Patch Panel
		Brush Panel	Brush Panel
		Patch Panel	Switch
			Brush Panel
			Patch Panel

Larger rack mountable Switch type >3U

C1
Leave 1 st U open
Cable Patch Panel
Brush Panel
Patch Panel
Brush Panel
Patch Panel
Brush Panel
Switch (Data)
Brush Panel

Installations requiring Data and Voice: As above, add voice patch panels and brush panels at the bottom of Data Switch leaving an open space between data and voice where possible.

Leave 1 st U open
Cable Patch Panel
Brush Panel
Patch Panel
Brush Panel
Patch Panel
Brush Panel
Switch (Data)
Brush Panel
Voice Patch Panel
Brush Panel

3.7.9.5 Patching

- All patch leads and patching must comply with the following:
 - As short as possible.
 - Neatly patched.
 - Only use the Molded Cords.
 - All doors of the cabinet must be able to close after cable installation has been done without excessive pressure and bending to the cables.
 - Comply with the following codes (patch and fly leads).

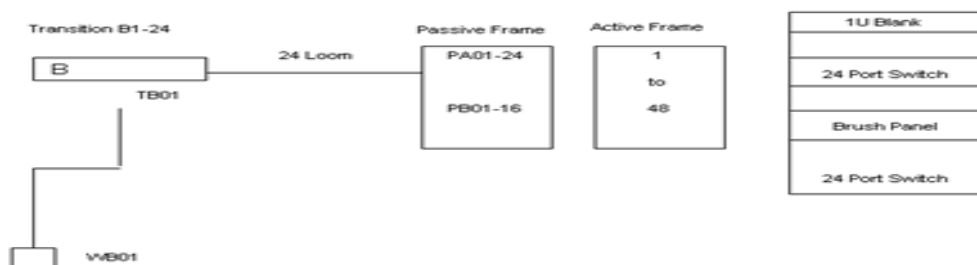
Data Normal	Grey	
Telephone	Black	
Cross over	Blue	

3.7.9.6 Labelling

- Outlets numbers must correspond to the number of the high band disconnect module on a frame or RJ45 on patch panel.
- Only permanent labels shall be used. Any method of numbering other than the use of permanent labels is unacceptable.
- A label must be attached to the UTP Cable feeding the outlet as close to the termination as possible and not further than 50mm from the termination. The number on this label must correspond to the outlet number.
- Label on UTP Cable will be the oval grip type.
- Label on wall outlet must be accommodated with glass holder provided.
- Label should be black on white paper.



Example:



Example:

WC16 _____ TA16 _____ PA16 _____ 22
 (Wall Outlet) (Consolidation Frame) (Passive Frame) (Active)

WB12 _____ TB12 _____ PB12 _____ 34
 (Wall Outlet) (Consolidation Frame) (Passive Frame) (Active)

Each site must have an updated drawing in the computer room and closet, which must be updated every time a drop is installed, or a loom added.

Labelling of Patch Panel

Wall Outlet:	WA01-24
Consolidation/Transition:	TA01-24
Patch Panel:	PA01-24
Label Patch Leads:	1-24

Each consolidation/transition on site must at least have a spare capacity of 30% for future growth.

NB: Transition and Consolidation are interchangeable.

Labelling Standard for all labels

2-E -A-01

LEGEND

2	FLOOR
E	CABINET
A	PATCH PANEL
01	PORT NUMBER

All labels on housings and patch panels to be black on white.

NOTE: NO HANDWRITTEN LABELS WILL BE ACCEPTED

- All cabinets to be supplied with laminated layout plan with point numbering.
- All labels on housings and patch panels to be black on white.
- All labels must be printed.
- A label must be attached to the cable feeding the outlet and patch panel as close to the termination as possible and not further than 50mm from the termination. The number on this label must correspond to the outlet number.
- Cabinet must be labelled in alphabetical order on the frame of the cabinet.
- Labels on cable basket/tray "Communication cables only" every 3m.
- Labelling format:

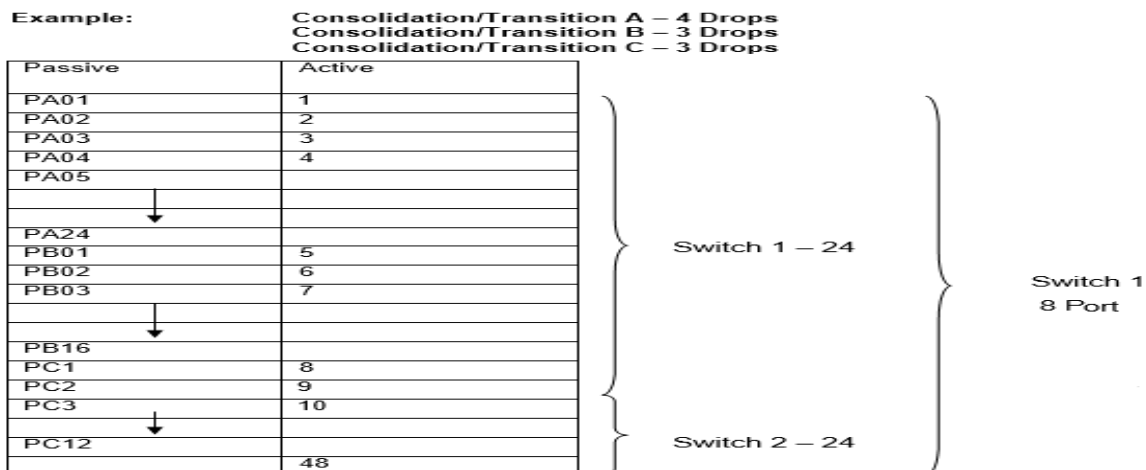
Floor	Cabinet	Patch Panel	Port Nr:	Label
1 – 99	A – Z	A – Z	1 – 48	
2 nd Floor	1 st Cabinet	3 rd Panel	5 th Port	2AC05

3.7.10 Mounting of Outlets

- Surface mount RJ45 outlets on skirting, dry walls and power poles must be fixed with pop rivets or flat type screws. No sharp edged screws to be used.
- Outlets mounted on a dry wall must be fixed with a positive hold behind the wall as to prevent it from coming loose.
- Flush mount RJ45 outlets must fit inside a punched hole, the hole must accommodate the outlet comfortably as to prevent it from being either too loose or being damaged.
- Outlets must be mounted correctly, and should not be susceptible to dust ingress (facing upwards).
- Outlets must be mounted sideways and all should face the same direction. Wall outlets should be level after mounting.
- All outlets must have lens covers covering the label.

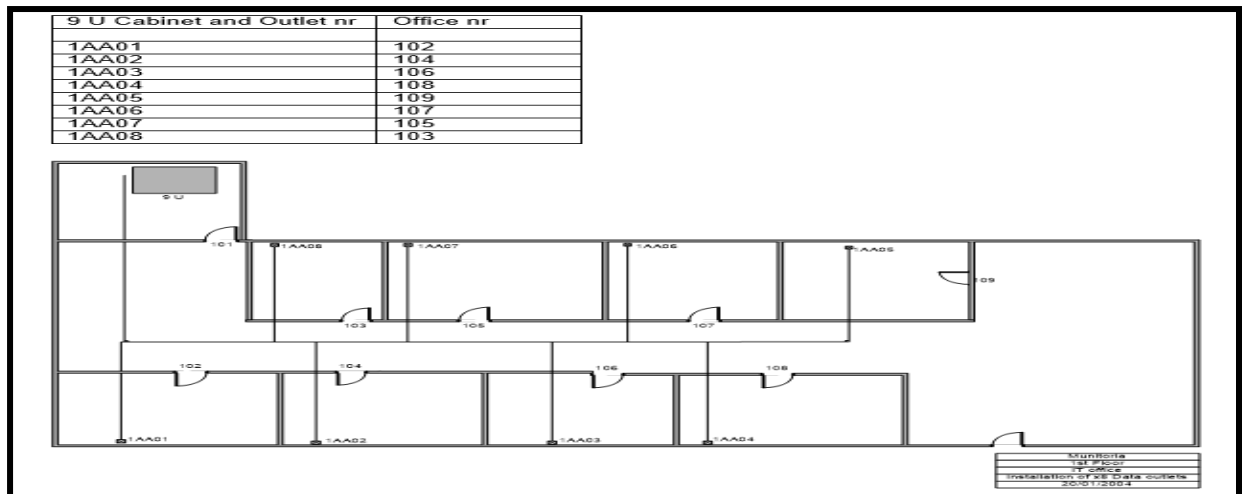
3.7.11 Database on Drawings

Every drawing handed in must have a database.



3.7.12 Cabinet Layout Plan

- All cabinets to be supplied with a layout plan with point numbering, to be installed in a plastic holder outside the cabinet.
- Layout plan must show the following:
 - Floor plan in relation with the outlet, routing and patching.
 - Room number in which the outlet is located.
 - The routing of the permanent link.
 - List with the structured cable numbering.
 - Drawing must be in Visio format
 - Drawing must have a legend with date and reference number.



3.7.13 JUMPERING SPECIFICATIONS

3.7.13.1 UTP Cable Type

- Only category 5e UTP solid may be used for permanent jumpering between frames.
- Only High band patch cables may be used for temporary patching between frames (HB (S4) – HB (S4) Temporary Patch).

HIGHBAND PATCH CABLE



CATEGORY 5 SOLID JUMPER CABLE



3.7.13.2 Termination

- Jumper cables must be terminated with the blue position on the left starting with white in the left position and color in the right position.
- No additional twists may be added or any twist on a pair removed.
- Twists must be maintained up to the termination.
- Sheathing must be maintained up to the back of the High band disconnect module.
- Jumper cables must be terminated at the bottom position of the disconnect block.
- Jumper cables must enter from the back of the 8 pair disconnect block in the same fashion as a horizontal cable and not from the side.

3.7.13.3 Looming

- Jumper cables must be neatly routed through frames and bundled together with Velcro strips and not cable ties.
- Jumper cables may only be routed under the false floor and not over the top and through jumper guides provided.

3.7.13.4 Labelling and Colour Coding

- As previously stated within this document.

3.7.14 PATCH LEAD SPECIFICATIONS

3.7.14.1 High band Specification

- Only moulded system leads to be used for patching.
- Length of system cord depends on requirement.
- Fly leads should be moulded cords and must be lengths of 4. 3m or 6m.

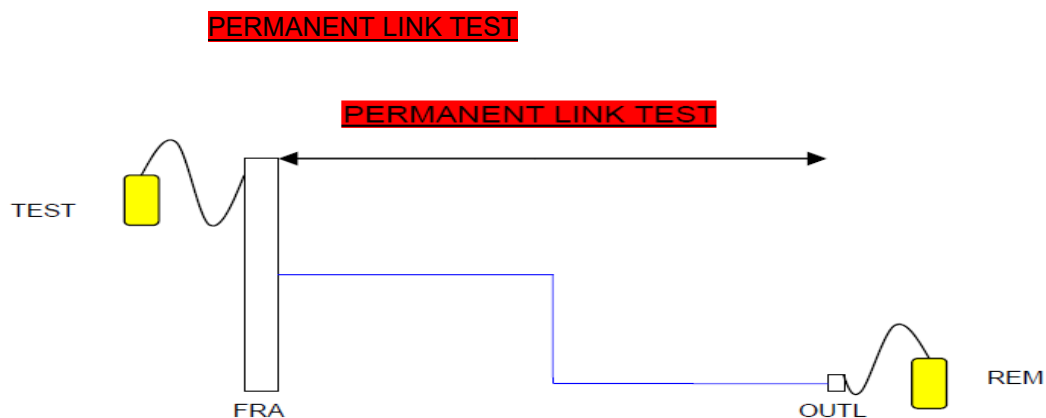
3.7.14.2 Patch Panel Specification

- Only moulded cords to be used for both patch- and fly leads.

3.7.15 TESTING (TESTING STANDARDS ARE SUBJECT TO CHANGE)

3.7.15.1 Standard: UTP (EIA / TIA 568-D; ISO/IEC 11801-1:2017)

- Permanent Link (Between patch panel and wall box.)
- Channel (Between HB Block (frame / patch lead) and wall box (fly lead).
- Channel (Between HB Block (frame / patch lead) and HB block (consolidation/transition).



- The following test parameters must be used and reflected on the test results
 - Fault anomaly threshold=15%
 - NVP=69% for cat 5e and at 6
 - NVP=65% for Copper10
 - NVP=78% for cat 6A F/UTP
 - NVP=79% for cat 6A S/FTP (Cat7 cable used for cat 6A)

3.7.15.2 Result Information

- Test Results must reflect the following information:
 - Client
 - Site
 - Date
 - Installer Name
 - Operator Name
 - Outlet number
- Labelling of test results must be labelled as described in this document.

3.7.15.3 Tests

Tester requirements

The following requirements will therefore apply:

- Testing of 10 single points and less use a level 2 tester or better.
- Testing of more than 10 points use only a level 4 or better type tester.
- Repairs to network points tested with a level 2 or better type tester.
- For certification purposes a level 4 or better type tester is required.

The following tests must be conducted

- Wire-map
- Length
- Insertion Loss
- Near End Cross Talk
- Power Sum near-end Crosstalk
- ACR-N (Attenuation To Crosstalk Ratio – Near end)
- PS-ACR-N Power Sum Attenuation To Crosstalk Ratio – Near end
- ACR-F (Attenuation To Crosstalk Ratio – Far end)
- PS-ACR-F Power Sum Attenuation To Crosstalk Ratio – Far end
- DC (Direct Current) Loop Resistance
- Propagation Delay
- Delay Skew
- Return Loss
- Shield test must be enabled
- DC-Resistance enabled (POE requirement)

The Technician going to test a UTP Cable must ensure that they have a labelling machine to label any cables not labelled. Must provide test results before fixing a point and provide results after fixing the point before leaving the site and confirm that the problem has been fixed. Minor repairs, for example the use of a Krone or equivalent tool, must be included in the price. See price list attached.

3.7.16 CERTIFICATION PROCEDURE

Process as follows:

- Every Monday the contractor has to hand in a complete set of documentation (2 sets) per site as agreed upon.
- Complete documentation includes – 100% correct Test Results, 100% floor plans indicating floor layout, a signed Warranty Registration document and a signed and filled in Checklists.
- A physical site inspection will be done on the same day.
- Thereafter the certification authority has 5 working days to go through all the documentation and give feedback to the contractor
- Should the documentation and physical be 100% correct and according to standards, then the certification authority will issue the contractor with the relevant site certificate the following Monday during the meeting.
- Should the physical inspection fail, then a cost of R250.00 per site (cost may vary as per certification authority re-certification costs) will be enforced and will be payable in advance. This cost is payable by the contractor.
- Contractor to hand in a complete set of documentation to CoT in order for CoT to sign the site off on their behalf. Documentation should consist of – Test results for copper in a hard and soft copy format, floor plans indicating the layout, cabinet layout and checklists.

3.7.17 EARTHING AND BONDING

Earthing and bonding guidelines are given below. It is however, the contractor's responsibility to ensure that it adheres to the relevant wiring standards and laws.

- 25 mm Copper conductor to main building
- 16 mm Copper conductors to earth Cabinets.

3.7.18 SPECIAL REQUIREMENTS

Cabling:

All communications cabling used throughout this project shall comply with the requirements as outlined in the appropriate local codes. All cabling shall meet the relevant fire performance standards for the environment in which they are installed.

All cabling in ceilings must be done in PVC conduit or suspended on cable trays or centenary wire.

Fire Stopping:

Sealing of openings between floors, through rated fire and smoke walls, existing or created by the contractor for cable pass through shall be the responsibility of the contractor. Sealing material and application of this material shall be accomplished in such a manner, which is acceptable to the local fire and building authorities having jurisdiction over this work. Creation of such openings as are necessary for cable passage between locations as shown on the drawings shall be the responsibility of the contractor's work. Any opening created by or for the contractor and left unused shall also be sealed as part of this work.

Penetrations of walls, floors and ceilings:

The contractor shall make no penetrations of floors, walls or ceiling without the prior written consent of the City of Tshwane if the building is a historic building but for non-historic buildings no prior written consent is required.

Where penetrations through acoustical walls or other walls for cableways have been provided for the Contractor, such penetrations shall be sealed by the contractor in compliance with applicable code requirements and as directed by the City of Tshwane.

Where penetrations through fire-rated walls for cableways have been provided for the contractor, the contractor shall seal such penetrations as required by code and as directed by the City of Tshwane. The contractor shall, prior to the commencement of on-site activities, submit to the City of Tshwane for review, details of any special systems to be used.

Repair of a faulty or broken wall box:

The repair of a faulty or broken wall box, either single or double, due to user damage will always require replacement of the Keystone with a new one and re-termination of the wall box.

Repair of a broken link:

Repair of a broken link to be repaired with only the length of cable required and not the whole cable.

3.8 DOCUMENTATION INCLUDING DRAWINGS AND REPORTS

3.8.1 The contractor/supplier shall supply documentation as required.

3.8.2 All drawings, test results and invoices must be submitted to the within 5 working days after completion of a specified cabling installation. All drawings must be compiled using "MICROSOFT VISIO 2000" or newest and floor/building/route layout in AutoCAD format. If drawings are not available it is the responsibility of the contractor to compile the relevant drawing. All changes to the existing cabling infrastructure must be indicated on a revised drawing.

Drawing must include the following:

- Layout of building
- Room numbers

Invoices will not be entertained without all the necessary documentation.

3.8.3 All documentation called for shall be provided in files, which comply with the following requirements:

- Supplied in English
- A4 paper size
- Of construction that can open flat on any page
- Any drawings and descriptions shall conform to the A4 size. Larger drawings shall be folded in a single panel along the 200 mm axis of the standard A4 size.
- Different sections of the documentation shall be separated by means of thumb tag separators.

3.8.4 The documentation shall include the following:

- Index
- Test certificates for site tests before installation
- Complete cad drawings of tube connections and pathways

3.8.5 The contractor will supply CoT with a report on a regular basis. The report must indicate the following (and also other relevant information):

- A schedule containing the call id, nr of points to be installed, cable team assigned etc
- Amount of points installed
- The amount of calls received
- The amount of calls completed
- The total amount invoiced for the month

3.9 Route building

Before route building commences the contractor must inspect the premises and indicate any existing damage, dirty patches etc. to the CoT project manager. Failure to observe this may lead to the contractor repair these deficiencies at own cost.

All trunking, ceiling tiles, lift up floors etcetera opened must be closed upon completion of installation.

The site must be cleaned properly on completion of installation. This includes but is not limited to the following:

- drilling dust must be vacuumed
- all off-cuts must be removed
- dirty walls must be cleaned properly
- All off-cuts of copper cable must be removed from the installation site

Teams must be issued with disposable gloves to handle ceiling tiles.

The contractor shall be responsible for damage to any surfaces or work disrupted as a result of his/her work. All surfaces damaged during the installation process must be repaired to its original state. Repair of surfaces, including painting, shall be included as necessary. It is the contractor's responsibility to obtain the matching paint etc.

3.10 Equipment

All teams working at CoT must be issued with all the tools required to do the installations. No equipment, including ladders, may be borrowed from CoT at any stage. Sufficient provision must be made for ladders and under no circumstances shall furniture be used as ladders.

CoT must be provided with a schedule of tools issued to each team.

Testing equipment must be calibrated annually and the certificate must be made available to CoT.

A spare set of test equipment must be available in case of faulty equipment.

3.11 Method of work

3.11.1 Accreditation

- All cabling teams will be evaluated and accredited to work on CoT sites, no person that is not accredited will be allowed on a site.
- Cabling teams must wear clearly identifiable protective clothing on site at all times.
- Cabling teams must be issued with a job card indicating stock provided for the specific job.
- The contact person must be contacted on site to check access before driving to the site.
- Points must be tested within one day of completion.
- On completion of the job the stock used must be noted on the job card for invoice purposes.

The following documentation must be handed in, per job, within 5 working days for invoicing:

- Quotation
- Completed Job card
- Test results
- Drawings
- Invoice

3.11.2 PROJECT AND MAINTENANCE TEAMS

Cabling teams will be divided into project and maintenance teams.

- **Project Teams:** Project teams will only be assigned to projects and should consist of at least four persons with a supervisor. Project teams will only be assigned to projects (generally assigned to new UTP installations whether it is the rewiring of an existing building or the wiring of a new building or section of a building). It is the responsibility of the successful Tenderer to ensure that sufficient project teams are available to wire several projects concurrently as the situation demands. However, ICT reserve the right to notify the contractor to deploy additional teams to complete specified projects or if the contractor fails to deal with the situation or if the workload increases to such an extent as to warrant additional teams.
- After the successful contractor is appointed, ICT will meet with the contractor to discuss the projects, the number of teams necessary and the deployment of the teams. Normal duration of projects is four weeks (after receipt of official order) including installation of UTP. This cost must be included in the labor charges quoted in the schedules. The contractor cannot invoice separately for these project teams/supervisor. On projects, due to cut-offs, cable measurement will be done as follow: measurement of installed cable as per test result plus 5% of this measurement. Off-cuts must be removed from site by the contractor.
- **Maintenance Teams:** Maintenance teams shall consist of at least two persons. Five teams are required to deal with the daily 1-10 point installations. The successful contractor must appoint a supervisor to firstly manage the maintenance teams and also to ensure that sufficient stock is available. All maintenance calls should be completed within 48 hours after receipt of official order.
- Again, if Tshwane determines that the work load is strenuous, it will inform the contractor to deploy additional teams with immediate effect. This cost must be included in the labor charges quoted in the schedules. The contractor cannot invoice separately for these maintenance teams/supervisor. CoT will issue the cable teams with calls, and will not issue new calls to a particular team unless all calls have signed-off job cards from the customer. No additional payment will be made for off-cuts. Off-cuts to be removed from site by contractor.

Tshwane staff are required to log maintenance/project calls at the service desk. The contractor's supervisor will on a daily basis receive a list of calls that were logged and will every morning prepare the necessary quotes (from the Tender prices). ICT will forward the quotes to the necessary Department/Division for the necessary SAP order to continue with the installation. As soon as the SAP order is received, the contractor will ensure that the work is completed within the specified period. For maintenance calls only standard quotes are given (there is an item in the price list that must be used for maintenance calls). However, for projects, the contractor's supervisor need to scope before the quote is prepared.

In some instances, maintenance calls shall be upgraded to projects if the work cannot be carried out for instance single point in an outbuilding where there is no cabinet or UTP connection. As with all projects, a proper scoping shall be performed and the contractor will re-quote.

Every maintenance/project team must be equipped with his/her own test meter as to immediately test the point after installation to confirm that the point is working. The test must be handed to the supervisor as to generate the necessary invoice. Invoices and test results should also be done on a daily basis as to facilitate payment on a regular basis. It is the successful tender's responsibility to provide all tools and test equipment and to ensure that the equipment is calibrated according to manufacturer's standards. The contractor shall employ or contract suitably qualified and trained personnel to provide the Services to Tshwane in terms of this agreement. The personnel must be certified and under no circumstances will Tshwane be used as a training facility.

The contractor must appoint an on-site quality controller (responsible for project and maintenance quality control) to assist the supervisor with the invoicing process and to inspect all sites in conjunction with the quality controller of ICT. This cost must be included in the labor charges quoted in the schedules. The contractor cannot invoice separately for this person. Tshwane will provide office space and computers (Win XP with MS Office) for the quality controller and supervisor. However, software to download test results and quoting modules or other software necessary to complete the functions are the responsibility of the successful contractor.

A on-site resource to be provided who is skilled in Visio, who will be responsible for updating of all site and cabinet drawings, create drawings for existing cabinets that do not have drawings and ensuring existing cabinet drawings are updated and maintained as technicians go out to work on cabinets and that the correct and updated drawing is posted at the correct site. Ensure that the site drawing is updated and labelled as per the labelling standard.

An on-site resource must be provided who will be responsible for project and maintenance single quotes, purchase orders, setting up of teams (project and maintenance), allocating jobs to the various teams and ensuring the allocated jobs are completed successfully.

3.11.3 STANDBY TEAMS

The contractor must make provision for teams available for the following:

- After hours
- Weekends
- Holiday periods inclusive of the December festive season

It is the contractor's responsibility to keep CoT up to date on team members, their contact numbers etc. A standby roster must be provided with contact person and number for after hour, weekend and other events support.

The contractor must keep all the necessary stock and testing equipment to do emergency repairs after hours.

3.11.4 INSTALLATION PRACTICES

Contractor to adhere to the following installation practices:

- All points and cabinet positions must be indicated on the relevant floor plan before installation commences.
- Install the cabinet and, build the routing and do earthing (ensure that we have earthing of cabinets i.e. install earth wire etc for the cabinet).
- Install network points and build the routing required.
- Beginning at the furthest points from the cabinet place cable rolls in the room and pull the cables to the cabinet allowing for slack at cabinet.
- Route individual cables to their respective outlet boxes allow 300mm extra and cut the cable.
- Once all the cables have been pulled through do looming and anchoring of looms.
- Close ceilings and trunking.
- Do termination labelling and testing of points.
- Repair any damage to site.
- Clean the site.
- Update the drawing.
- Complete quality control checklist of installation.

SECTION 2: THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE MAINTENANCE OF THE FIBER NETWORK

SECTION 2.3: REPAIR/MAINTENANCE OF THE FIBER NETWORK

SECTION 2.3: MAINTENANCE OF THE FIBER NETWORK

4.1 SCOPE AND WORK PROCEDURES

The City of Tshwane (CoT) reserves the right to either appoint a company as sole service provider on this tender or award it to multiple service providers. A Service Level Agreement (SLA) forms part of this tender document. This part of the Tender is for The City of Tshwane's Corporate Optical Fiber Network and the CoT requesting the following services for a period of **three (3) years** for:

- The supply, delivery, repair, maintenance, testing and commissioning of optical network fiber cabling for The City of Tshwane.

The Tenderers:

1. Must follow the NRS 061, NRS 078, NRS 081, NRS 088 standard of installing fiber.

4.2 RELEVANT ACTS, REGULATIONS AND STANDARDS

The whole of the installation shall comply and the work shall be executed in accordance with the latest edition of the following:

- a) The Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Act or the Construction Industry Safety Regulation Act 38 of 2000 (Act No 38 of 2000), whichever is applicable and their respective Regulations;
- b) Relevant SABS standards document with the latest amendments, issued by the South African Bureau of Standards;
- c) The regulations and by-laws of City of Tshwane;
- d) The CoT Fire Department Regulations;
- e) The applicable regulations of the relevant telecommunication authority such as ICASA;
- f) The relevant SABS, BS NRS and IEC and ISO supporting specifications referred to in this document.

4.3 SAFETY

- The contractor shall be responsible for maintaining safe conditions on site and shall bear all responsibilities in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Construction Industry Safety Regulation Act, 2000 (Act No 38 of 2000), whichever is applicable.
- The contractor shall be responsible for supplying and installing the required safety signs as determined by the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Construction Industry Safety Regulation Act 2000 (Act No 38 of 2000), whichever is applicable, both during the implementation/construction phase and for the completed works.
- All safety signs shall comply with the requirements of the latest edition of SABS 1186 as applicable.

- The successful contractor must complete the attached “**OCCUPATIONAL HEALTH AND SAFETY AGREEMENT FOR CONTRACT WORK IN THE CITY OF TSHWANE**” immediately after notification that the tender was successful. No work shall commence until this manual has been completed.
- The contractor shall have a registered electrician available, conducting all electrical work, a CoT requirement for working on fiber on pylons. A certificate of compliance must be issued by the contractor for each completed job. **Compliance must be indicated on the tender.**
- Safety is a concern as work on HV (High Voltage) pylons and electrical substations will also be undertaken. Contractors to ensure that they are fully aware of the switching procedures of the CoT and that the required permits/documentation is provided before continuing with projects involving Electrical Reticulation and therefore the Electrical Department. As part of the evaluation criteria, contractors will be scored in accordance with courses attended by supervisors (or other personnel). Course certificates (especially for supervisors, but can include other personnel) must be attached to the bid and can include:
 - Eskom Or Similar Approved Training:
 - Basic Electricity
 - ORHVS Modules 1 to 10
 - Equal Potential Earthing
 - Risk Assessment and Distribution Risk Management
 - Other courses:
 - First Aid Level 1 and 2
 - Basic Fire Fighting and prevention
 - Working at heights
- Any other pertinent courses can also be attached as safety is a concern.

4.4 QUALITY OF MATERIALS AND WORKMANSHIP

All material and equipment shall conform in respect of quality, manufacture, tests and performance, with the relevant requirements of the South African Bureau of standards or where no such standards exist, with the relevant current specification of the British Standards Institution and/or relevant IEC and/or ISO publications and/or Commscope (Krone) or equivalent Specifications in the order as listed.

All material and equipment shall be suitable for the conditions on site. These conditions shall include weather conditions as well as conditions under which materials are installed, stored and used. Should the materials not be suitable for use under temporary site conditions then the contractor shall at his own cost provide suitable protection until these unfavorable site conditions cease to exist.

The contractor shall, were requested to do so, submit samples of equipment and material to the CoT representative for approval prior to installation. The CoT representative may retain these samples until the contract is completed after which they will be returned or paid for if damaged or lost during the contract period.

To ensure quality, a list of products is specified within this document. Mix and match options are not considered, the whole link excluding patch and fly leads must be of one product type only.

The contractor must appoint a quality controller to ensure that workmanship is always up to standard.

4.5 MEETINGS

The contractor will be required to schedule and minute a bi-weekly (fortnightly) meeting with the CoT. The following must be standing discussion points:

- Reporting on complaints, i.e. complaints received and scheduling information etc.
- Reporting on status of projects.
- Attend, where required, a site visit and/or clarification meeting at which the contractors may familiarize themselves with aspects of the proposed work, services or supply & Land Location etc. and raise questions before and after awarding of the tender/contract.

The contractor may also be required to attend AdHoc meetings as and when required (for example project meeting with the client CoT).

4.6 SPECIAL CONDITIONS

- Acceptable delivery period for materials (projects) is 4-6 weeks.
- Contractor to keep suitable stock to respond on maintenance/repair calls. Stock to be kept at contractor's premises for immediate response. Please note such stock will be for the cost of the contractor. The contractor will only get paid for actual quantities used.
- Materials and workmanship to be guaranteed for a minimum of 12 months.

4.7. FIBRE OPTIC CABLING TENDER SPECIFICATIONS

4.7.1 INSTALLATION PRACTICES: FIBRE OPTICS CABLE SPECIFICATION

Fibre Optics Cable Type

Only CoT approved Fiber Optic cables may be used for installations.

Cabinet Layout for Fibre

- CoT will source cabinets through its supply chain policy separate from this tender.
- Termination of Fiber on patch panels:
 - Fiber patch panel to be recessed to make way for patch lead bend radius.
 - Start populating and terminating from left to right.
 - Start installation by:
 - Leaving the first U open.
 - Fiber patch panel.
 - Brush panel.
 - Data patch panel.
 - Brush Panel.
 - Leave space if possible.
 - Brush Panel.
 - Telephone patch panel.
 - Brush panel.

- Information supplied below pertaining to cabinet layout is to assist contractor installing fiber cables to patch panel.

Leave 1 st U open
Fiber Panel
Brush Panel
Data Patch Panel
Brush Panel
Switch
Brush Panel
Brush Panel
Telephone Patch Panel
Brush Panel

Rack mountable Switch type 1U – 3U

A1	A2	A3	A4
24 Port Patch Panel with 1 x Switch	24 Port Panel with 1 x Switch and Fiber Panel	24 Port Panel with < 1 x Switch	24 Port Panel with < 1 x Switch and Fiber Panel
Leave 1 st U open	Leave 1 st U open	Leave 1 st U open	Leave 1 st U open
Patch Panel	Fiber Patch panel	Patch Panel	Fiber Patch Panel
Brush Panel	Brush Panel	Brush Panel	Brush Panel
Switch	Patch Panel	Switch	Patch Panel
	Brush Panel	Switch	Brush Panel
	Switch	Brush Panel	Switch
		Patch Panel	Switch
			Brush Panel
			Patch Panel
B1	B2	B3	B4
48 Port Panel with 1 x Switch	48 Port Panel with 1 x Switch and Fiber Panel	48 Port Panel with < 1 x Switch	48 Port Panel with < 1 x Switch and Fiber Panel
Leave 1 st U open	Leave 1 st U open	Leave 1 st U open	Leave 1 st U open
Patch Panel	Fiber Patch panel	Patch Panel	Fiber Patch Panel
Brush Panel	Brush Panel	Brush Panel	Brush Panel
Switch	Patch Panel	Switch	Patch Panel
Brush Panel	Brush Panel	Brush Panel	Brush Panel
Patch Panel	Switch	Patch Panel	Switch
	Brush Panel	Patch Panel	Brush Panel
	Patch Panel	Brush Panel	Patch Panel
		Switch	Patch Panel
		Brush Panel	Brush Panel
		Patch Panel	Switch
			Brush Panel
			Patch Panel

Larger rack mountable Switch type >3U

C1
Leave 1 st U open
Fiber Patch Panel
Brush Panel
Patch Panel
Brush Panel
Patch Panel
Brush Panel
Switch (Data)
Brush Panel

Installations requiring Data and Voice: As above, add voice patch panels and brush panels at the bottom of Data Switch leaving an open space between data and voice where possible.

Leave 1 st U open
Fiber Patch Panel
Brush Panel
Patch Panel
Brush Panel
Patch Panel
Brush Panel
Switch (Data)
Brush Panel
Voice Patch Panel
Brush Panel

Fiber Labelling

- All labels must be printed.
- All labelling must be computer printed type label, black on white.
- Labelling format:

Building/Floor	Cabinet	Label Fiber Patch Panel	Port Nr:	Label on fiber patch panel
1 – 99	A – Z	A – Z	1 – 48	
2 nd Floor	1 st Cabinet	3 rd Panel	5 th Port	2AC05

Fibre to desk mounting of outlets

Fiber Optic Wall Outlet should be used to terminate horizontal fiber cable at the workstation in Fiber to the Desk applications (FTTd).

Permissions and Route Building

It is the contractor's responsibility to:

- Enter the building to provide these routes.
- Obtain permission from building maintenance to enter any of City of Tshwane buildings, Gautrans, Eskom or Telkom way leaves etc if building belongs to any one of them.
- Obtain permission from CoT Electricity Control Room to utilize any electricity infrastructure such as power stations, lampposts, pylons and any overhead electricity.
- Note that Route Building within a building will be sourced by CoT through its supply chain, however the contractor installing fiber cables will be required to enter the building at some stage and must provide route to cabinet.

Key control and access to premises such as substations.

Issuing keys

The Network Control Centre issues keys centrally. All persons, to whom keys must be issued, must fill in the necessary documents, obtain the relevant Area Engineer's written recommendation on the documents and hand the documents in at the Control Network Centre for authorization and issuing of keys.

All persons to whom keys are issued are responsible for their safekeeping and they may not be transferred to another person, nor may copies/duplicates be made. Non-compliance with these instructions will be regarded as an offence and will be dealt with accordingly through certain specific penalties to be determined by CoT.

Responsibility of people authorized to use keys

An employee who has opened a door or gate of a live chamber is responsible for applying **regulations 27.5 to 27.9** (See regulation 15 EMR, Act 85 of 1993) Immediately after a person has entered a live chamber/prohibited area, **he or she must lock the door or gate through which access was gained**, except in instances where it has to remain open for switching operations. When vacating a live chamber/prohibited area for any reason whatsoever, the person to whom the key was issued is responsible for seeing to it that all persons leave the live chamber/prohibited area and that all the doors and gates are properly closed and locked. Under no circumstances may the key of a live chamber/prohibited area be left in the lock.

Handing back and lost keys

A person to whom keys have been issued in terms of these regulations must return the keys to the City of Tshwane when requested to do so.

If problems are experienced with a key (broken or damaged), it will be replaced/returned after the original one has been handed in. The appropriate replacement form must be filled in and submitted to the Network Control Centre.

Loss of keys must immediately be reported to the **Head: Transmission and Distribution Control**. If keys are lost, the appropriate declaration forms must be completed at the Network Control Centre, after which the keys can be re-issued.

Locking of substations

Substations must be closed and kept locked when they are unmanned.

Access to live chambers and prohibited areas

Every door and gate to a live chamber or prohibited area must normally be closed and locked. To facilitate exiting in cases of emergency, a door or gate giving access must remain unlocked while work and/or operations are being carried out, provided that no unauthorized person may gain unrestricted access. Only persons who are authorized to enter may go into live chambers and/or prohibited areas without obtaining special permission.

Permission for giving access to live chambers

Nobody other than an authorized person may enter or work in a live chamber unless he or she is under the supervision of a competent person. In addition, the authorized person's particulars must be entered on the work permit and he or she must be under the supervision of the competent person.

Procedure for giving persons other than authorized person's access to prohibited areas.

A person who is not authorized to enter a prohibited area may only be given access to the ground level of a prohibited area if he or she is under the supervision of a competent person and/or authorized person, is working in terms of a work permit and has signed the workmen's declaration.

Persons other than authorized persons must remain on the ground level to ensure that **unintentional human contact** or flash over in high voltage yard areas with live machinery next to or above the demarcated area is not possible from the guarded area. In addition, a work permit must be issued, stating particulars of the machinery on which such persons have to work, unless they are under the supervision of a competent person or authorized person.

If part of a prohibited area in which work has to be done, as well as access to that part, is properly demarcated from the rest of the prohibited area so that dangerous approach to live machinery is prevented, such part is no longer regarded as a prohibited area, and supervision by an authorized person is no longer required.

No unauthorized person may climb onto machinery inside the demarcated part of a prohibited area unless the supervisor has first climbed onto the machinery in the presence of the unauthorized person. The responsibility for confirming that the machinery is dead, and that it is also mechanically suitable for being climbed onto, lies with the supervisor.

Access to live chambers and prohibited areas by means of ladders:

No metal, steel, steel extension, steel-frame wooden or steel-frame glass fiber ladders of any type are allowed in live chambers or prohibited areas. Metal swing ladders (hook ladders) are allowed in prohibited areas, provided that they are carried by two persons at the same time and under supervision of a competent person.

Ladders to be used in live chambers or prohibited areas must be adjustable to ensure that they are not to be longer than is required by the work concerned.

No scaffolding or hoisting devices may be erected, dismantled, extended and/or transported unless this takes place in the presence of a competent person.

4.7.2 Fibre Cabling

Installation must comply with the ISO11801 International Standard for Structured Fiber Cabling, an International standard (ISO/IEC 11801) which specifies general-purpose telecommunication cabling systems (structured cabling) that are suitable for a wide range of applications (analog and ISDN telephony, various data communication standards, building control systems, factory automation). It covers both balanced copper cabling and optical fiber cabling.

4.7.2.1 Installation Of Hdd (Heavy Duty Duct)

Indoor Installation

- Fiber Cable Trays:
 - Use existing cable trays where available and still in good condition.
 - All fiber cables must be fastened with cable ties to the cable tray.
- EGA Trunking:
 - Minimum size trunking to be use = 40mmx40mm.
 - No infrastructure available:
 - Suspension wiring to be used.
 - S-hooks or J-hooks to be used, with sag of no more than 120mm visible.
 - Cable should not lie on the ceiling and must be out of harm's way from being stepped on, damaged by fire or water.

Outdoor Installation – Draw Wire

- Galvanized Piping
 - The optical fiber cable must be in a protection pipe up to the roof or the dedicated fiber tray in the ceiling/roof.
 - From the roof/ceiling there must be a dedicated cable tray for the fiber cables.
 - All fiber cable must be fastened with cable ties to the cable tray or infrastructure available.
 - Always adhere to the maximum bending radii for fiber cables.
- Man Holes
 - Intermediate Manholes:
 - Secure cable identification label with cable ties in every manhole. Label should be oval grip label type.
 - Do not leave any slack at intermediate manholes unless there must be a joint introduced for future developments. Planning must indicate this.
 - Splicing Manholes:
 - Fit slack Box/dome joint in manhole 100mm from manhole roof if possible or any other practical position.
 - Cable slack must be 10 meters on both cables to enable splicing to take place outside of manhole inside the splicing vehicle.
 - Secure label on fiber cable with cable ties in every manhole. Label should be oval grip type.

- Trenching:
 - A draw rope must be installed.
 - Trenching must comply with CoT standards to be supplied with tender.
- No Infrastructure Available:
 - Infrastructure must be installed according to CoT requirements,

4.7.2.2 Installation of Aerial Fibre

- The contractor shall supply and install all other material related to aerial installations including bandit straps, strain and suspension clamps, s-hooks, kick pipes, poles (wooden, concrete or steel), stays, hospital saddles, galvanized pipes, pigtails and all other hardware required to install the fiber as well as neatly enter the buildings.
- The contractor must allow for escalation annually on all prices and all materials by visiting the site (sites will be provided) prior to tendering/quoting as no extra claims with regards to any hardware/material requirement will be entertained after the tender/quote has been approved.
- The protection of the cable on the poles shall be supplied by the contractor using:
 - Three (3) meter galvanized 25mm kick-pipes.
 - Bandit straps 300mm apart.

Indoor Installation

- Cable Trays
 - Use existing cable trays where available and still in good condition.
 - All fiber cables must be fastened with cable ties to the cable tray.
- EGA Trunking.
 - Minimum size trunking to be use = 40mmx40mm
- No infrastructure available.
 - Suspension wiring to be used.
 - S-hooks or J-hooks to be used, with sag of no more than 120mm visible.
 - Cable should not lie on the ceiling and must be out of harm's way from being stepped or tripped on, damaged by fire or water.

Outdoor Installation

- Safety Requirements: When working on high-tension routes, qualified electricians from the contractor must assist with the installation.
- Galvanized Piping.
 - The optical fiber cable must be in a protection pipe up to the roof or the dedicated fiber tray in the ceiling/roof.
 - From the roof/ceiling there must be a dedicated cable tray for the fiber cables.
 - All fiber cable must be fastened with cable ties to the cable tray or infrastructure available.
 - Adhere at all times to the maximum bending radii for fiber cables.
- Splicing: Secure slack Box/dome joint on pole. Cable slack must be 10 meters on both cables to enable splicing to take place.
- Cable Span
 - To support the cable at intermediate poles, hook support clamps into the suspension hooks.
 - After the cable is terminated, wait for a while to allow the cable to stabilize before clamping the cable in the support clamp for intermediate support poles. Tangent supports can also be used instead to support cable at intermediate poles.
 - Long span Aerial fiber distance between poles or support bracket is up to 250m
 - Short span Aerial fiber distance between poles or support bracket is 40-100m
- Transformer: Brackets with appropriate arms must be used to bypass transformers. Brackets must conform to Tshwane's Electrical Department specifications.
- No Infrastructure: Infrastructure must be installed according to CoT requirements.

TENSION TABLE FOR INSTALLING AERIAL OPTIC FIBRE CABLE

Elements	Fiber Count	Span Length (M)	– Tension (N)	SAG (MM)
4	4 - 24	40	480	260
		50	520	400
		59	590	490
		67	575	650
		83	640	900
		100	760	1100
		120	750	1600
		150	750	2500
8	24 - 48	40	730	260
		50	740	400
		59	845	490
		67	820	650
		83	820	1000
		100	850	1400
		120	850	2000
		150	890	3000

Aerial fiber supporting system

	Before cable extension				After cable extension			
	Spiral external diameter	Wire diameter	Product length	Weight/piece	Number of turns	Spiral external diameter	pitch	Extension length
S	70mm	5mm	1.8m	4.3kg	360	40mm	170 7 2mm	61m
						50mm	150 7 2mm	54m
M	90mm		1.75m	5.5kg	350	50mm	80 7 2mm	84m
						60mm	70 7 2mm	80.5m
L	100mm		1.35m	5.3kg	270	60mm	300 7 2mm	81m

4.7.2.3 Termination

- **Fiber Cable**

- Follow cable preparation schedule as described for splicing preparation.
- All the fibers of an optical fiber cable must be spliced to fiber tails in a patch Panel in the transmission room.
- Only fusion splicing may be used to splicing in the Fiber panel.
- All point-to-point optical fibers shall be terminated in the same physical sequence on both near-end and far-end transmission stations, thus meaning that the fiber sequence on terminating stations shall be identical on both terminating patch panels. Patch panel positioning is of importance to ensure continuation of fiber sequence on cables with a fiber count exceeding 24.
- Ensure fiber cable is properly secured with entry gland as well as exit gland. Only approved fiber tails may be used.
- Always adhere to minimum bending radii when routing fibers in the termination drawers.
- Identification labels must be put on all the termination drawers to identify the fiber and the location.
- If installing a 24 loom fiber it must always terminate all cores at all times.
- Only approved fiber tails may be used.

- **Fiber Patch Panel**

- Existing installation use ST or LC Midcouplers.
- Terminate from left to right on the fiber panel.
- Each midcoupler must be labelled numerically (1-24).
- All Labelling must be computer printed type label, black on white.
- Each fiber cable to be labelled with oval grip type and fastened with cable ties indicating fiber type, number of cores, feeding from and feeding to.
- Fiber panel must be recessed inside the cabinet to accommodate all leads.
- 2m slack must be left inside the splice tray.

- All ports on the tray that is not used must be blanked off; all label holders must be installed.
- Labelling format:

Fiber type	Number of cores	Numeric position on path panel	Feeding from Feeding to
MM	8	1-8	Sammy marks 4 th floor – 7 th floor
MM	16	9-24	Sammy Marks 4 th floor – Munitoria 6 th floor

- **Fiber Tails**

- Only approved 1m fiber tails must be used

- **Fiber Patch Cords**

- Patch cord lengths: As per Pricing Schedule
- Patch cord connector type: As per Pricing Schedule
- Color
 - Yellow cords for Single Mode
 - Orange or Blue for Multi Mode

- **Splicing**

- All the fibers of an optical fiber cable must be spliced to fiber tails in a Patch Panel in the transmission room.
- Only fusion splicing may be used to splicing in the Fiber panel

Dome Joints

- Only approved dome joint to be used and must consist of the following:
 - Must be waterproof.
 - O-ring seal.
 - Heat shrinks for cables.
 - Screw type bracket to seal lid.
 - Wall mounts brackets.
 - Splice organizer.
 - Seal unused inlets with plugs.

- **Colour Coding**

- The first tube in each layer will be red with the intermediate tubes natural colored and the last tube green.
- In a tight buffer cable the color-coding of the first fiber starts from red, neutral through to green.
- The cooler code of the fibers in each tube will be blue, orange, green, brown, grey and red.

SEQUENCE	LOOSE TUBE	FIBRE PER TUBE
First Tube	Red	Blue, Orange, Green, Brown, Grey, Red
Intermediate tube	Natural	Blue, Orange, Green, Brown, Grey, Red
Last Tube	Green	Blue, Orange, Green, Brown, Grey, Red

NOTE: Tube coding is repeated for each year

- **Slack**

- Cabinet: Cable slack in ceiling must be 5 meters.
- Manholes – draw boxes
- Cable slack at splicing manholes must be 10 meters.
- Intermediate Manholes: Do not leave any slack at intermediate manholes unless there must be a joint introduced for future developments. Planning must indicate this.
- Fiber cable Slack: Cable slack in ceiling must be 10 meters
- Inside ducts: No slack to be left in ducts.
- Splice Tray: Cable slack at termination point must be 2 meters.
- Slack Box: As per CoT Site scoping requirements.
- Slack at Dome Joints.

- **Bend Radius**

- For Long Span Aerial cable up to 24 fibers = 200mm.
- For Short Span Aerial cable up to 24 fibers = 100mm.
- For Heavy Duty Duct Cable up to 24 fibers = 115mm

- **Preparation of Fiber routes**

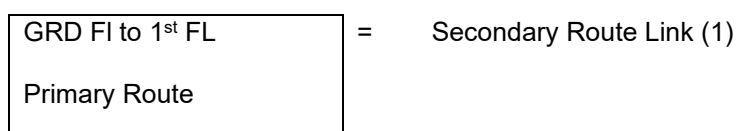
- As per CoT site scoping requirements

- **Fibre Links between floors**

- Only Heavy Duty Duct cable may be used.
- Commscope (Krone) or Equivalent Splice Trays may be used with Mid-couplers, Pigtails and Fly leads as indicated in the Pricing Schedule.
- Mid-couplers Adaptors must be secured to Fiber Tray as per the manufacturer's specifications.

- **Fiber Optic Marking Procedures:**

- Firstly the cable entering at the back of the splice tray is labelled with an AT3 and 6.4mm CLEAR HEATSHRINK.
- The cable is then marked with 9mm black on white Machine Label. The marking indicates the immediate next location of the Fibre e.g. 4F/O to Block C.
- On the face of the SC splice tray the white label holder must be installed including the window, using 9mm black on white Brother Labels. The port is marked from near location to far location e.g.



4.7.2.4 Multi Mode Fibre (MM)

- Typical Wavelength losses.
 - 850nm = 3.0 to 3.5dB/km
 - 1300nm = 0.8 to 1.5dB/km
- Splice Losses: 0.1dB to 0.4dB.
- Connector Losses: 0.4dB.
- Return Loss: -45dB with a flat face connector
- All multi mode fiber joints to be done by direct termination.
- OM3, OM4

4.7.2.5 Single Mode Fibre (SM)

- Typical wavelength losses
 - 1310nm = 0.34 to 0.40dB/km
 - 1550nm = 0.22 to 0.25dB/km
- Splice Losses: 0.1dB to 0.4dB
- Connector Losses: 0.4dB
- Return Loss: -45dB with a flat face connector

4.7.2.6 Hauling Tension

- Hauling is carried out with a cable sock capable of transferring sufficient load to the cable strength member materials (zero slippage occurs).

OPTICAL FIBRE CABLES - UG

<i>CABLE SIZE</i>	<i>MAXIMUM HAULING TENSION*</i>
12 FIBRE UG	1200N
24 FIBRE UG	1200N
48 FIBRE UG	1500N
72 FIBRE UG	2000N
96 FIBRE UG	2000N
144 FIBRE UG	2600N
12 FIBRE CST	2800N
24 FIBRE CST	2800N
48 FIBRE CST	3200N
72 FIBRE CST	4200N
96 FIBRE CST	4200N
144 FIBRE CST	5200N

4.7.2.7 Twist And Coiling

- Cable drums must be supported with an axle on trestles.
- During installation the cable must be laid out in a figure 8 method.
- Twisting of fiber cable is not allowed.

4.7.2.8 Blown Fiber

Cabinet/Termination Point

- Only Multi-Tube Bundles to be used. The Multi-Tube Bundle must have an outer sheath made up of HDPE (High Density Poly Ethylene). The individual tubes within the multi-tube construction must be HDPE with low friction internal coating. The product must support the following Multi-Tube Bundle counts: 2, 4, 7-Way Bundles.
- The product range must support Anti-Termite and Anti-Rodent protection in both the Direct Burial and Direct Install multi-tube bundles.
- Only Enhanced Performance Fiber Units may be used.
- Labelling of individual tubes and of multi-tube bundles to be permanent, readable and consistent.
- Label individual tubes 50mm to 100mm from the back of the patch-panel.
- Label multi-tube bundles 50mm from the unsheathed area.
- Unsheathing to be neat with no tubes damaged.
- Spare/empty tubes to be loomed and secured neatly with sufficient slack.
- End Caps fitted to all spare tubes.
- Only straight connectors to be used to connect individual tubes.
- Maximum bend radius to be in accordance within manufacturers specifications and must be maintained at all times.
- End caps to be utilized when multi-tube bundles are installed. Once in place the end caps to be placed on individual tubes immediately.
- Bend radii of multi-tube bundles to be adhered to at all times. These radii are available from the supplier.
- Exposed tubes to be loomed neatly and secured within the cabinet.
- If cable ties are used for securing the multi-tube bundles, it must not compress or damage the multi-tube bundle.
- Multi-tube bundle entry into cabinets must be secure and protected from external damage.
- Tubes must be secured when entering the patch-panel.
- There must be sufficient slack on tubes for the removal of patch-panels. The patch panels should be able to be pulled 400mm out from the front of the cabinet.
- All tubes must be clean, dry and undamaged.
- There must be a general neat appearance.
- All installations to comply with manufacturers specification and installation practices.

Horizontal Link

- The Multi-Tube Bundle must have an outer sheath made up of HDPE (High Density Polyethylene). The individual tubes within the multi-tube construction must be HDPE with low friction internal coating. The product must support the following Multi-Tube Bundle counts: 2, 4, 7-Way Bundles.
- Labelling of individual tubes and of multi-tube bundles to be permanent, readable and consistent.
- Label multi-tube bundles 50mm from the un-sheathed area.
- Unsheathing to be neat with no tubes damaged.
- Spare / empty tubes loomed and secured neatly with sufficient slack.
- End Caps fitted to all spare tubes.
- Straight connectors to be used to connect individual tubes.
- Maximum bend radius to be in accordance within manufacturers specifications and must be maintained at all times.
- End caps to be utilized when multi-tube bundles are installed. Once in place the end caps to be placed on individual tubes immediately.
- Multi-tube bundles not to be kinked or damaged during installation.
- Building entries and exits to be neat with bend radii maintained.
- Fiber cables supported at regular intervals (brackets 1m apart) or housed in acceptable pathways.
- Bend radii of multi-tube bundles to be adhered to at all times. These radii are available from the supplier.

- If cable ties are used for securing the multi-tube bundles, it must not compress or damage the multi-tube bundle.
- There must be sufficient slack at joint locations for the removal of the enclosure for blowing purposes.
- All tubes must be clean, dry and undamaged.
- The correct trenching practices to be used when installing Direct Burial bundles. Please refer to supplier.
- Ensure that the multi tube bundles follow the planned route.
- Bundles to be raised from ceilings and protected from external damage.
- There must be a general neat appearance.
- All installations to comply with manufacturers specification and installation practices.

Ribbed-Pipe

- Double wall corrugated construction, manufactured with high impact strength HDPE.
- Smooth inner for easy cable installation.
- Ribbed-Pipe OD: 50mm and 110mm.

Sub-Duct

- Smooth interior silicone, for optimal flouting/blowing performance.
- Sub-Duct OD/ID: 32/26 and 40/33

Micro-Duct

- Suitable for direct burial, and available in different tube counts.
- Ranges from 2-Way, 4-Way and 7-Way
- Microduct Size of 12/10mm

Installation of Equipment

- Only certified installers to operate equipment.

Installers

- All installers would have to pass the Installers course with a minimum of 90% score.

4.7.2.9 Vertical Inlaid Fibre

Vertical inlaid fiber

- Loose-tube micro-cable design
- All-dielectric design. No grounding required.
- 24 or 12 fiber count, using Corning SMF-28e enhanced single-mode fiber
- Extreme temperature range capacity: -40 to +85 °C
- Portable: a standard 4.2 km VIF spool weighs approx. 52 kg and has dimensions of 711 mm x 711 mm x 330 mm

Vertical deflecting conduit

- Two part interlocking design
- Capacity for up to three VIF cables
- Flat-plane crush >2000 lbs/linear inch
- Slim profile that protects against agricultural tools in boulevard deployments
- 3m sections for simplified transport (can be manufactured on spools if desired)
- Marked with bold lettering: "Warning - Fiber Optic Cables Inside" to aid utility companies in identifying during construction

Splice enclosure

- Small size (294mm x 108mm x 13.5mm)
- Multiple access ports (6 ports with two entrances per port - a total of 12 possible entrance points)
- Capacity for up to 48 splices (multiple splice enclosures can be installed in each Cylindrical access node (CAN))

- Galvanized steel body and lid
- H20 load tested
- Water drainage port
- Rugged lid with security fasteners and a non-skid surface
- Well anchored for long-term stability
- Multiple ports to allow the transition of cable or vertical deflecting conduit directly into the CAN

4.7.2.10 Excavations

- **General:** The contractor shall preserve the site as far as possible. Only the minimum of trees, shrubs, rocks and sand shall be removed and cleared for the trench route. Where surplus material has to be disposed of the contractor shall at his own cost load and transport the surplus or unsuitable material for backfilling, to a suitable dumping ground.
- **Trench Routes:**
 - The trench shall be excavated along the routes indicated on the relevant drawings.
 - The trench shall be straight and shall comply with all requirements. The CoT representative shall determine the length of the trench to be excavated, which shall not exceed 700m at one time before the trench is backfilled.
 - If any obstacle or interference should be encountered which may require alterations to the trench or routes, such alterations shall receive prior written approval from the CoT representative before alterations commence.
- **Trench excavation**
 - The trench shall be excavated to a depth determined by the CoT representative (normally 1,1m).
 - The contractor shall excavate by hand where he cannot excavate by means of machines due to limited access and in the proximity of other services.
 - The bottom of the trench shall be level and shall follow the contours of the final ground level. Where the excavation is in excess of the required depth, the excavation shall be backfilled and compacted with suitable material to the required depth.
 - The contractor shall trim the trenches and clean up the bottom of the trenches after he has completed the required excavation.
 - Bedding shall not be laid until the trench has been approved by the CoT representative. Where bedding has already been laid the CoT representative may instruct the contractor to demonstrate that the minimum thickness of bedding has been provided.
 - The contractor shall remove all sharp projections which could damage the cable where the trench is excavated through rocky formations, and shall remove all loose rocks, material, etc from the bottom of the trench.
- **Excavated material:**

No excavated material shall be left closer than 300 mm from the side of the excavation. The excavated material which is considered by the CoT representative to be suitable for bedding material shall be placed separately on one side of the trench so that it is available when required. The excavated material shall take up as small an area as possible with the safety of the public, workmen and Works taken into consideration.
- **Inspection and measurement of excavations:**
 - Once the excavations for cable trenches and have been completed, the contractor shall give the CoT representative 8 hours' notice to inspect the trench and to be present when the measurements are made. No inspections shall be undertaken on Saturdays, Sundays and public holidays and after 14:00.
 - Full detail of the cable trench dimensions and classification of the type of excavation shall be recorded and signed by the contractor's representative and the CoT representatives as the final quantities for payment of excavations.
 - Inspections and recordings shall be completed before the installation of any bedding or back-filling and the contractor shall be responsible to keep all records as proof of progress. These records shall be checked by the CoT representative who will issue a site instruction to the contractor and will be used as a basis for claims for payments.

- **Maintenance of excavation:**

- The contractor shall maintain the excavation in a good condition, free of water, mud, loose ground, rocks, stones, gravel and other strange material until the cables are installed and the excavation is backfilled and compacted.
- Inspection/Draw manholes shall be excavated to a depth of 1,2m and shall be rectangular in shape and large enough for manhole.

Measurement of Excavations:

- The tendered rate must be the same for all materials except where blasting (hard rock) is required.
- The unit of measurement shall be the cubic meter of material excavated in trenches, classified according to the depth and width specified listed. The width classification shall be in accordance with the authorized dimensions and the depth of excavation shall be measured to the underside of the bedding.
- The tendered rate shall include full compensation for clearing and grubbing the trench areas and the temporary removal of improvements from the line of the trench, for excavating the trench, preparing the bottom of the trench, separating material unsuitable for backfill, keeping the excavations safe, dealing with any surface or subsurface water, measuring, classification and keeping of all records and for separating topsoil and selected backfill material where necessary. The Tendered rate shall also include for the breaking of tar roads and removal of his material.
- This measurement shall also apply to hand excavations (either because many services are expected or machines are not viable to use). The Tshwane Site Representative will point out such excavations. This is also applicable to inspection cross-cut excavations.

- **Land surveyor's beacons**

- The attention of all employees is drawn to the Land Survey Act, 1927 (Act 9 of 1927), in terms of which they could be fined or imprisoned if they should shift a beacon. An employee must immediately report any accidental shifting of a land surveyor's beacon to his or her supervisor. All employees must ensure that excavations are indicated with proper signs and that a barrier is provided in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as amended.
- If work is not completed in one day, all excavations must be protected in the above way.
- If it is impractical to cover excavations, barriers or a fence of at least one meter in height must be placed around the excavations.
- When excavations through the road surface are going to be done and will require filling afterwards, the Supervisor must make out a work order to the Manager: Roads and Storm Water, or representative so that the excavations can be filled in and the road repaired.
- Excavations which are deeper than 1.2m (depth based on generic risk assessment), must be properly supported and shored or else the sides of the excavation must be sloped to at least the maximum angle of repose measured relative to the horizontal plane. The sloping is required to limit the depth of the excavation to 1.2m where the slope of the sides exceeds the maximum angle of repose.
- Excavations exceeding 1,2 m and deemed to be in stable material where the need for shoring might not be required must be inspected by a competent person and permission given in writing to continue work inside excavation without shoring and bracing or sloping of sides.
- In all instances where excavations or cuttings are made, the necessary safety precautions must be taken in accordance with the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as amended, and the necessary signs and safety regulations must be provided and adhered to in accordance with the Traffic Regulations.

- **Sand Bed For Fiber:**

- A sand bed layer of soft soil shall be installed and levelled at the bottom of each trench after the trench has been approved by the Tshwane Site Representative, and prior to laying the cable.
- The minimum thickness of the sand bed layer is 100 mm.
- If the material that has been excavated is not suitable to sift for the sand bed layer then suitable soil shall be imported for this purpose. The cost thereof shall be included in the unit price for the excavation unless otherwise specified. An adequate quantity of soil similar to the sand bed material shall be available next to the excavation for the sand cover before an inspection of the cables is called for. The sand cover for cables/fiber shall be a minimum of 300 mm thick and shall be placed directly after the cable(s)/fiber(s) has been inspected and approved by the Tshwane Site Representative. If the soil for the sand bed and sand cover has to be sifted, a sieve with holes not larger than 10 mm shall be used. Contractor to provide enough sieves to cover the cable length in one day.

- **Laying Fiber:**

- The fiber shall be laid at 1m below final ground level, after the completion of the trench, be laid with the minimum of delay so that the trench can be backfilled the same day. The contractor shall, however, not backfill the trench until each length of cable has been inspected and approved by the Tshwane Site Representative. Prior segments of the inspection shall be done by the contractor not to delay backfilling. The service position shall be as specified in the project specification or as detailed on the standard services drawing.
- The method to be used for laying fiber shall be as specified by the fiber manufacturer prior to the commencing of the laying of the fiber.
- Cable rollers shall be used when cables are drawn into trenches. The cable rollers shall be placed so that the cable does not touch the bottom or the sides of the trench. The rollers shall be of an approved construction without any sharp metal parts which could damage the fiber.
- If the contractor intends using a winch to draw the cable into the trench, only approved methods as stated by the fiber manufacturers may be used. The maximum tension on a cable during laying operations shall not exceed the value specified by the manufacturer, these tension scales and tables shall be approved by the contractor prior to the installation of the cable.
- Should the Tshwane Site Representative not be satisfied with the manner or method employed to lay the cable he shall have the authority to instruct the contractor to lay the cable by hand or in accordance with approved standards.
- Where cables/fiber are drawn through sleeves, care shall be taken that they are not kinked or excessively bent. No bend in a cable shall have a radius less than the maximum bending radius specified by the cable manufacturer.
- The contractor shall keep accurate records of each length of fiber laid. The following information shall be recorded:
 - Fiber drum number
 - Size of fiber
 - Position i.e. stand/street numbers
 - Length of fiber
 - Date fiber was installed
- The contractor shall be liable for the repair of the fiber due to the faulty manufacture of the cable, should this information not be recorded directly after the fiber has been laid. Fiber to be clearly marked.
- The unit of measurement shall be linear meter of fiber needed to cover the distance of the trench excavated (and possible entrance into buildings) and shall include the labor cost for laying the fiber. Fiber will be provided by others unless otherwise specified.

- **Verification of Fiber:**

- The contractor shall be solely responsible for inspecting all cables before backfilling to ensure that the correct type, size and number of cables have been installed.
- The Tshwane Site Representative shall inspect all cable trenches before backfilling to ensure that the laying of fibers complies with the specification.

- During this inspection the contractor's and Tshwane Site Representative shall record the lengths for all cables/fiber and all such records shall be signed by both representatives as the final quantities. The contractor shall be responsible to keep the records as proof of progress and as basis for claims for payment.
- **Road Crossings:**
 - The contractor shall approve all crossings with the Tshwane Site Representative prior to the crossing. The cable sleeves shall be installed 1,5 m below ground level to avoid damage when the roads are constructed. Tar roads shall only be drilled, prior to approval by the Tshwane Site Representative. Unless otherwise specified, one additional sleeve shall be installed for future use at each crossing and shall extent 500mm past both sides of the road or future road.
 - Sleeves used for crossings shall be straight and undamaged. Bends shall not be allowed in road crossings.
 - After the installation of the sleeves, the sleeves shall be meticulously backfilled so that no air pockets are left. The trench shall thereafter be backfilled in layers of 300 mm and compacted with mechanical vibrators to the original density.
 - The contractor shall lay and join the cable sleeves and compact the trench to the satisfaction of the Tshwane Site Representative. After installation, the sleeves shall be cleaned and a 2 mm galvanized steel draw wire installed in the sleeves (OR Nylon wire as indicated elsewhere in this specification). The type and sizes of the sleeves are specified elsewhere in this document.
- **Crossing Of Other Services**
 - Where a cable/fiber crosses over other services, the cable/fiber shall not be installed at a depth less than 800 mm below ground level and if this is not possible the cable shall be installed underneath the other services, it shall be protected in the prescribed manner by means of concrete slabs. The depth of the cable crossing shall be maintained for one meter on either side of the crossing. No services shall be cut to install cable. If it is not possible to cross over or underneath a service in the prescribed manner, the matter shall be referred to the Tshwane Site Representative for a decision.
 - The unit of measurement shall be the amount of slabs used and shall include the cost of the slabs as well as labor to install the slabs.
 - The following minimum clearances shall be maintained between fiber and other services:(side to side):

	<u>Vertical</u>	<u>Horizontal</u>
GPO Cables	0,5 m	0,5 m
Water pipes	0,3 m	0,6 m
Sewer pipes	0,3 m	0,6 m
Storm water pipes	0,3 m	0,6 m
Electrical cables	0,3 m	0,6 m

- **Backfilling of Trenches:**
 - When the cable/fiber has been laid, inspected and approved and the sand bed cover has been installed, the trench shall be backfilled with soil containing not more than 40% rock or shale which shall be able to pass through a 10mm sieve which is approved by the Tshwane Site Representative.
 - Where more than 40%, but less than 70% rock occurs, the contractor shall replace the rock with imported soil. However, should more than 70% rock occur then all the backfilling material shall be imported.
 - The contractor may import further stone-free material to the site or sieve the excavated material for sand bedding and cover but payment shall only be compensated for the actual quantity imported material required as determined by the Tshwane Site Representative. The quantity of imported material required shall be calculated from the standard trench width specified.

- The excavated material shall be backfilled in layers of 300 mm and shall be compacted to the satisfaction of the Tshwane Site Representative. Where necessary the Tshwane Site Representative may require a mechanical vibrator to be used for compacting the trench, and tests to be done by specialist contractors. The contractor shall maintain the completed sections of the cable trench in a proper safe condition for the duration of the contract. The contractor shall refill and compact the trench where subsidence occurs at his own cost.
 - After completion of the work the route of the cable shall be neatly finished off and cleared. All stones bigger than 25 mm as well as all loose organic material and rubble shall be removed.
- The unit of measurement shall be the cubic meter of material needed to cover the costs of installing the sand bed and sand cover, backfilling, compacting and disposing of the surplus material.
- **Installation:** Where fibers cross other services such as water pipes, sewerage pipes and other cables or where the chance exists that the cable may be damaged as a result of excavation by others, the fiber shall be protected by means of reinforced concrete slabs or fiber protection covers. The slabs or covers shall protect the cable for a distance of 500 mm on either side of the crossing.
- **Fiber Markers:**
 - Cable route markers shall be installed where specified to indicate the fiber route and positions of cable joints and cable sleeves. The markers shall be buried in the ground on the stand boundary, with the rounded side to the cable, indicating the distance from the boundary to the cable, joint (if applicable), sleeve, or where the cable crosses a known service, with the top protruding 100mm above the final ground level. The route marker shall be marked with signal red paint at the top 100mm. Route markers shall be placed at every change in direction and at 300 m intervals on straight runs and where the cable turns or leaves a substation yard.
 - The unit of measurement shall be the amount of markers used and shall include the cost of the markers as well as labor to install the markers (including possible excavations and backfilling).
- **Clearing Of Site:** The contractor shall remove everything that he brought onto the site or handled on the site in the execution of the contract as well as all excess excavated material and rubble so as to leave the site in a neat and clean condition to the satisfaction of the Tshwane Site Representative after the completion of the contract and after the Tshwane Site Representative's approval has been obtained. Any cleaning up work to be done by the contractor will be allowed for in the excavation rate as tendered.
- **Plastic Warning Tape:**
 - Plastic warning tape shall be laid 300mm above the cable/fiber or the length of the trench.
 - The unit of measurement shall be linear meter of warning tape needed to cover the distance of the trench excavated and shall include the cost of the tape as well as labor to install the tape.
- **Excavation of roads etc:**
 - Obstruction and Damage: Where trenching operations are carried out in a roadway, at least half the roadway shall always remain open to traffic and where trenching is carried out on side-ways (pavements), safe, uncluttered thoroughfares shall be provided for pedestrians.
 - Before construction equipment is allowed onto surfaced roadways or paved side-ways, the Contractor shall obtain approval from the CoT representative for his proposals of how he intends operating his equipment without causing damage to the road or side-way surfaces. The Contractor shall be held liable for repairing the damage caused by his equipment to surfaced roads, paved side-ways, curbing, etc. and restoring them to their original condition.
 - Before excavations are made in a surfaced roadway or paved side-way, the approved position and width of the trench (minimum of 400 mm) shall be marked on the surface. The surfacing material or in situ concrete paving shall be neatly cut 200mm (100mm on either side) wider than the actual excavation to provide an in-situ shoulder for the re-sealing of the trench and to avoid possible over break during excavation. Paving units shall however not be cut but shall be lifted as near as possible along the markings. All services are to be placed at a minimum depth of 600 mm below surfaced roadways. Once the surface layer (asphalt or paving) has been removed in a surface roadway, the top selected ± 450 mm excavated material is to be stored separately for re-use, should it comply with the requirements of selected material (complying to

minimum G5 specifications). Note: Provision should always be made to import selected material, as the existing road foundation of older roads may not be sufficient.

- Trench backfilling (side-ways and unpaved): Backfilling shall be done with approved excavated material, which shall not contain any stones larger than 150 mm. All backfill material shall be compacted to 90% of modified AASHTO density in layers not exceeding 150 mm in compacted thickness and with the use of vibratory equipment. Topsoil previously set aside shall be replaced as a final layer on top of the backfilling leaving the material 100 mm proud of the original ground surface to allow for settlement.
- Trench backfilling (side-ways and paved): All backfill material shall be compacted to 93% of modified AASHTO density in layers not exceeding 150 mm in compacted thickness to a level below the paving material with due allowance, where applicable, for the thickness of the sand bedding layer.
- **Trench Backfilling (surfaced roads):**
 - Backfilling shall be compacted to 93% of modified AASHTO density in layers not exceeding 150 mm in compacted thickness and shall be taken up to a level 500 mm below the existing road surface. Selected material (complying to minimum G5 specifications), stabilized by the addition of a quantity of cement equal to 3% of the dry mass of the gravel and compacted in three 150 mm thick layers to 95% of modified AASHTO density shall be used to backfill the balance of the trench to a level 50 mm below the existing road surface.
 - Should the excavated selected material (complying to minimum G5 specifications) not be suitable or sufficient, an approved material is to be imported. The remaining 50 mm shall be filled with asphalt after the stabilized surface and the cut sides of the existing surfacing (100 mm wider on either side of the excavation) have been primed with a 60% anionic bitumen emulsion. The asphalt shall conform to the requirements for medium grade, continuously graded asphalt. The asphalt shall be placed and thoroughly compacted by means of vibratory equipment and shall be finished off flush with the existing road surface. If for some reason the remaining 50 mm cannot be filled immediately with asphalt, approved excavated material shall be used as a temporary measure, enabling the road to be opened to traffic as soon as possible. This temporary backfilling shall be well compacted and maintained until the asphalt can be placed.

- The following is a guideline of the compaction densities required for the backfilling when tested with the aid of a DCP apparatus. Density according to DCP (Dynamic Cone Penetrometer) and RCCD (Rapid Compaction Control Device) tests.

Backfill layer	Below surfaced road		Below paving on side-ways	
	DCP mm/blow	RCCD mm/3 blows	DCP Mm/blow	RCCD mm/3 blows
50mm - 200mm	< 4	< 18	< 10	< 40
200mm - 350mm	< 9	< 45	< 15	< 80
350mm - 500mm	< 14	< 75	< 20	< 100

SCHEMATIC SUMMARY OF REQUIREMENTS

i) Typical Road Foundation

ii) Excavation Dimension

iii) Compaction Requirements

○ **Surfaced Roads:**

- Backfilling shall be compacted to 93% of modified AASHTO density in layers not exceeding 150 mm in compacted thickness and shall be taken up to a level 500 mm below the existing road surface. Selected material (complying to minimum G5 specifications), stabilized by the addition of a quantity of cement equal to 3% of the dry mass of the gravel and compacted in three 150 mm thick layers to 95% of modified AASHTO density shall be used to backfill the balance of the trench to a level 50 mm below the existing road surface. Should the excavated selected material (complying to minimum G5 specifications) not be suitable or sufficient, an approved material is to be imported.
- The remaining 50 mm shall be filled with asphalt after the stabilized surface and the cut sides of the existing surfacing (100 mm wider on either side of the excavation) have been primed with a 60% anionic bitumen emulsion. The asphalt shall conform to the requirements for medium grade, continuously graded asphalt. The asphalt shall be placed and thoroughly compacted by means of vibratory equipment and shall be finished off flush with the existing road surface. If for some reason the remaining 50 mm cannot be filled immediately with asphalt, approved excavated material shall be used as a temporary measure, enabling the road to be opened to traffic as soon as possible. This temporary backfilling shall be well compacted and maintained until the asphalt can be placed.
- Measurement: The Tendered rate shall include all bedding, backfill, asphalt and other material needed to repair the tar road (including re-tarring) as stipulated above. The tendered rate shall include for all equipment (contractor's own equipment to be used) and labor needed to perform the compaction as stipulated above. The unit of measurement shall be cubic meter of backfill required. The Tendered rate shall also include all arrangements surrounding traffic.

4.7.2.11 PVC Pipes (Sleeves)

- **General:** The pipes shall be PVC, polyethylene, class “c” or approved alternative pipes complying with this specification. The CoT representative shall approve all samples of proposed cable sleeves prior to the ordering thereof.
- **Bore and jointing:**
 - The nominal outside diameter of the pipes shall be between 110 and 160 mm with a wall thickness of 5mm. The bore shall be accurate, smooth and without ridges or surface cracks and the inside edges shall be edged or rounded.
 - The edging or rounding shall be such that no ridge is formed when two pipes are joined and with the edges of the jointed pipes.
 - Joints shall be carried out with suitable couplings to prevent movement between pipe ends.
 - A suitable slip collar or other simple device shall be provided to maintain a minimum of 5mm spacing after the jointing of the sleeves. The joints shall be flexible enough and have enough play to allow for 5° adjustment in adjacent pipe lengths during installation or in the case of subsequent subsidence of the ground. The joints need not be watertight but shall stop sand, stones and other materials entering the sleeves. Flexible black sleeves or similar approved by CoT to be used.
- **Standard tests:** All pipes shall withstand a shock test conforming to the requirements of BS3505. All pipes shall furthermore pass the break resistance test specified below and the contractor shall submit a test certificate of a test carried out. CoT reserves the right to request that the tests be repeated in the presence of their representative. Compression test shall withstand a load of 2,9kN/m with maximum compression of 15mm/min and 5% deflection.
- **Pipe positions:** The positions and number of sleeves shall be indicated on the drawings. The sleeves must be installed strictly in accordance with the stand pegs and drawings. The distance between pipes shall be not less than 50mm where more than one pipe is installed. Pipes shall be installed in two staggered layers with a minimum distance of not less than 50mm between pipes where more than four pipes are specified for a road crossing.
- **Pipe lengths:** The pipes shall be extended 1m on either side of the tarmac, road surface or service to be crossed.

- **Installation**
 - The pipe shall be bedded onto a 50 mm layer of sifted sand. A 100mm sand cover shall be backfilled over the pipes and thoroughly compacted.
 - The pipes shall be laid straight without kinks and cross the road or other service vertical and horizontally.
 - After the installation of the sleeve, it shall be cleared out of all foreign material such as sand, etc. with a hand drill or cap.
 - The sleeve pipes shall be sealed with PVC plugs to prevent the entry of sand prior to backfilling the trench. The necessary precautions during further construction activities shall be made to prevent damage to the sleeve pipes.
 - Drilling or cutting of tarmac for road crossings shall be done only with the prior written approval by the CoT representative.
- **Inspection:** The contractor shall arrange with the CoT representative and/or CoT to inspect the sleeves after the sleeves has been installed and before the trench is backfilled and compacted.
- **Drilling:**
 - The location of drilling placement will be indicated by the CoT representative.
- **Draw Wire:**
 - All sleeves must be supplied with a nylon rope of at least 7 mm diameter.
 - The draw wire must be secured at both ends of the sleeve to ensure easy access. End-caps to be provide to prevent material from entering and blocking the sleeves.
- **Measurement:** The unit of measurement shall be linear meter of sleeves needed and shall include the cost of the sleeve, joints, and end-caps and draw wire as well as the Labor to install the sleeve, joints, and end-caps and draw wire.
- Optex HDPE direct burial duct UV stabilized complete with permanent silicone lubricant, OD/ID = 40/33, 1750 meter lengths can also be used to discretion of the CoT project coordinator.

4.7.2.12 Drilling

- **Drilling:** The location of drilling placement will be indicated by the CoT representative.
- The unit of measurement shall be linear meter of drilling required. The rate shall include drilling pits (if necessary), equipment costs (contractor to provide own equipment, labor and all other related costs except for the sleeves. Contractor to supply own water (if required) and costs to be included under this item.

4.7.2.13 Manholes

- **Manhole types:** Manholes placed in roads must be able to withstand any load that the manhole cover could be subjected (typical dimensions for small = 1mx0.6mx1m)
- **Construction**
 - The excavated area of the manhole must be retained by a properly constructed 110 mm brick wall.
 - The floor of the manhole pit must be covered with concrete
 - The manhole cover assembly must be cemented to the brick structure.
- **Measurement:** The unit of measurement shall be the amount of manholes used and shall include the cost of the material used in the construction of the manholes; manhole covers (preferably heavy duty) as well as labor to install the manholes (including possible excavations, backfilling and all masonry work).

- **Manhole Sizes:**

Manhole (Access Chamber) - Small

- Approximately 300mm deep with 200mm daylight opening.
- Consist of manhole lid, frame, coping, chamber panels and chamber bottom.
- Lockable lid with secure locking mechanism and key.
- Multiple and variety of knock-out duct entries.
- Integrated slack management brackets.
- Corrosion resistance, non-flammable, UV stabilized, impact resistant and shatter proof.
- Manufactured from high strength light weight reinforced polymers compound.
- Load rating: Light duty

Manhole (Access Chamber) – Medium

- Approximately 600mm deep with 350mm daylight opening.
- Consist of manhole lid, frame, coping, chamber panels and chamber bottom.
- Lockable lid with secure locking mechanism and key.
- Multiple and variety of knock-out duct entries.
- Integrated slack management brackets.
- Corrosion resistance, non-flammable, UV stabilized, impact resistant and shatter proof.
- Manufactured from high strength light weight reinforced polymers compound.
- Load rating: Medium Duty

Manhole (Access Chamber) – Large

- Approximately 900mm deep with 650mm daylight opening.
- Consist of manhole lid, frame, coping, chamber panels and chamber bottom.
- Lockable lid with secure locking mechanism and key.
- Multiple and variety of knock-out duct entries.
- Integrated slack management brackets.
- Corrosion resistance, non-flammable, UV stabilized, impact resistant and shatter proof.
- Manufactured from high strength light weight reinforced polymers compound.
- Load rating: EN-124 B125

Light duty Manhole Precast (Medium)

- Including chamber, multiple fiber entry points, non-metallic, lockable cover, non-conductive, corrosion resistance and low water absorption rate. 950mm Dia)

Light duty Manhole Precast (Large)

- Including chamber, multiple fiber entry points, non-metallic, lockable cover, non-conductive, corrosion resistance and low water absorption rate. 1200mm Dia)

Heavy duty Manhole Precast (small)

- Including chamber, multiple fiber entry points, non-metallic, lockable cover, non-conductive, corrosion resistance and low water absorption rate. (750mm Dia)

Heavy duty manhole Precast (Large)

- Including chamber, multiple fiber entry points, non-metallic, lockable cover, non-conductive, corrosion resistance and low water absorption rate. (1200mm Dia)

4.7.2.14 Pole Structures and Aerial Fibre

- The contractor shall ensure that the structures are not strained or damaged in any way during the erection thereof. All structures shall be vertical within a tolerance at the structure top of 0, 3% of the overall structure height, before erection of the conductors. Poles shall not exhibit either twisting or bowing greater than the approved tolerance which will not exceed 2% of the mast length. After erection of the fiber/cable the vertical tolerance of the structures shall not exceed 0, 5% of the height. Proper precautions shall be taken to ensure that poles are not strained or damaged in any way during handling, off loading or erection.
- Suitable ladders (note also Occupational Health and Safety Act requirements for ladders to be used on Electrical structures) shall be used whenever necessary during erection of the structures. All ladders shall be removed when erection work is not in progress.
- Once the structure has been erected aligned and the stays installed, excavations shall be backfilled and compacted in layers of 150 mm to 95% MOD AASHO. The holes for poles shall be excavated or drilled to a depth of 600mm + 10% of the total length of the pole (size of the hole for the concrete pole and the wooden)
- End-poles and T-off poles shall be suitably supported (stays and/or strut poles with anti-climb).
- **Measurement:**
 - Hardware/Material required to install aerial fiber: Unit of measurement is based on a unit price per pole and include all equipment, material (including Pigtail Bolt, S Hook, Metal Band Strapping, Bandit strapping buckle, tangent support irrespective of size etcetera but excluding the pole) and labor to string/install fiber (as well as the hanging of the fiber) and to enter required buildings.
 - Cutting of Trees: Unit of measurement for labor, equipment needed and removal and dumping of plant material will be based on an hourly rate.
 - Poles: Include cost for type of pole, planting of pole, compaction, delivery, off-loading etcetera.

4.7.2.15 Blasting (Hard Rock)

- If hard rock is encountered, a specialist blaster must be used complying to all legal aspects. Soft rock is part of normal excavations and is not seen as hard rock. Council must at all times be kept up to date on this aspect as it might impact on the timeous completion of the project.
- The measured rate shall be the cubic meters of hard rock to blast and shall include removal and dumping.

4.7.2.16 Permissions, Drawings and Insurance

- It is the responsibility of the contractor to obtain all the necessary permissions, drawings and services before the work may be commenced. Plans of existing services must be obtained by the contractor including water, sewerage, storm water pipes, electricity (high tension and low tension), Telkom and/or possible other services (gas pipes, Rand Water Pipes). The successful contractor shall try his/her utmost best not to damage existing services. A detailed record of damages along with complaint numbers must be held to Council.
- Caution is very important when aerial electrical lines are included in the installation i.e. 132kV, 11KV etcetera. **Under no circumstances may anyone work on these lines before prior approval has been obtained and necessary arrangements and safety precautions were made.**
- Liaising and complying with the rules of other Departments/Divisions within CoT will be requirement. The successful contractor must acquire and sign the safety manual.
- Other permissions may include:
 - Permissions to cross National, Provincial roads
 - Railway crossings
- Proof must be submitted to the CoT representative that sufficient insurance coverage for damage to services during construction is provided for.
- Work in the substation (if required) shall only be undertaken with the permission of the Electrical Control Room and in the presence of a Tshwane Employee and after obtaining all permissions and permits required by Electricity.

4.7.2.17 Measurement and Pricing

- All distances and quantities will be checked on site before payment.
- 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.
- 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.

4.7.2.18 Special Requirements

4.7.2.18.1 Fibre Cabling

All communications fiber cabling used throughout this project shall comply with the requirements as outlined the appropriate local codes. All cabling shall meet the relevant fire performance standards for the environment in which they are installed.

All cabling in ceilings must be done in PVC conduit or suspended on cable trays or centenary wire.

4.7.2.18.2 Fire Stopping

Sealing of openings between floors, through rated fire and smoke walls, existing or created by the contractor for cable pass through shall be the responsibility of the contractor. Sealing material and application of this material shall be accomplished in such a manner, which is acceptable to the local fire and building authorities having jurisdiction over this work. Creation of such openings as are necessary for cable passage between locations as shown on the drawings shall be the responsibility of the contractor's work. Any opening created by or for the contractor and left unused shall also be sealed as part of this work.

4.7.2.18.3 Penetrations of Walls, Floors and Ceilings

The contractor shall make no penetrations of floors, walls or ceiling without the prior written consent of the City of Tshwane.

Where penetrations through acoustical walls or other walls for cableways have been provided for the Contractor and such penetrations shall be sealed by the contractor in compliance with applicable code requirements and as directed by the City of Tshwane. Where penetrations through fire-rated walls for cableways have been provided for the contractor, the contractor shall seal such penetrations as required by code and as directed by the City of Tshwane. The contractor shall, prior to the commencement of on-site activities, submit to the City of Tshwane for review, details of any special systems to be used.

4.7.2.18.4 Description Of Task's For Installation Of Fibre In Electricity Substations

The following are brief descriptions of the tasks which must be performed for the energy and electricity substations. There are material and installation standards that must be read together with this part of the contract for better understanding of the items described herein. The clauses in this section refer to the various items to be priced for in the schedule of rates of this bid.

The fact that the bid process will take place prior to the actual appointments and job executions shall not limit the contractor from obtaining the latest standards and specifications.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE SURE THAT HE/SHE USES THE LATEST STANDARDS AND SPECIFICATIONS AS AMENDED BY CITY OF TSHWANE EED: ENERGY AND ELECTRICITY DIVISION.

The attention of the bidder is also drawn to the fact that CoT specification and installation standards are constantly revised to improve service delivery and the safety of both the infrastructure and the public. Where contradiction between this document and the Specification and Installation standards has been identified, the Project Manager will have the final decision.

The standards and specifications applicable to this contract are listed in the specification section. They will also be available in **soft copy or hardcopy** from the Procurement division at a fee, at a fee to be decided by procurement division.

This document contains the detailed technical specification for the installation of Optical Ground Wire (OPGW) on 132kV Power lines as well as underground fiber optic cable in the Tshwane substations region on a As and When Required basis. The contractor will be responsible for the complete scope of work that he or she is appointed for.

The contract comprises the design, supply, delivery, installation, stringing, connecting, testing, and leaving the Optical fibers in service condition to the satisfaction of the Council and the Engineer, as stipulated in this document, or as may be directed by the Engineer, and shall include all such materials and equipment which, though not expressly specified, are required and necessary to complete the whole project.

4.7.2.18.5 Tasks or Projects to Be Done

The contractor shall as and when required by the employer perform any one or more of the items as described in the specifications. The contractor provides the works in accordance with the scope given to him by the employer in the tender document or even after tender awarding.

The total project work includes the following, but not necessarily in the order as listed:

4.7.2.18.6 Electrical Works

The scope of this tender also covers the supply, installation, testing and commissioning of optical fiber to complement an existing optical network infrastructure in the Tshwane Metropolitan area. This additional optical fiber is required to extend the deployment of optical fiber to the electrical satellite substations identified points of presence via existing infrastructure owned by the City of Tshwane on an As and Required basis.

The data protection and communication network of the electricity Division services the various users of the electricity Division. At present, the primary task of the system is to provide communication for the power line protection systems. In addition, it provides communication to various substation emergency telephone networks, the Scada system and various load and quality monitoring system. The network presently services the entire 132 KV substation and the 206 secondary substations.

4.7.3 Testing

4.7.3.1 Equipment and Test Practices

Every fiber optic cabling link in the installation shall be tested **using Fluke or Equivalent** testing equipment in accordance with the field test Specifications defined by the CENELEC (Comité Européen de Normalisation Electro technique), Standard ISO/IEC 11801 or as determined by the CoT or the appropriate network application standard(s) whichever is more demanding.

ISO/IEC 11801 defines the passive cabling network, to include cable, connectors, and splices (if present), between two optical fiber patch panels (connecting hardware). A typical horizontal link segment is from the telecommunications outlet/connector to the horizontal cross-connect. A building backbone cabling subsystem extends from building distributor(s) to the floor distributor(s). The test shall include the representative connector performance at the connecting hardware associated with the mating of patch cords. The test does not, however, include the performance of the connector at the interface with the test equipment.

100% of the installed cabling links must be tested and must pass the requirements of the standards mentioned in this document. Any failing link must be documented, diagnosed and corrected. The corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements. The final and passing result of the tests for all links shall be provided in the test results documentation.

Experienced and knowledgeable technicians who have successfully conducted fiber testing before or successfully attended an appropriate training program and have obtained a certificate as proof thereof shall execute the tests. These certificates may have been issued by any of the following organizations or an equivalent organization:

- The manufacturer of the fiber optic cable and/or the fiber optic connectors
- The manufacturer of the test equipment used for the field certification
- Training organizations authorized by BICSI (Building Industry Consulting Services)

The test equipment shall comprise optical power source and meter equipment in accordance with IEC 61280-4-1 (for multimode optical fibers) and IEC 61280-4-2 (for single mode optical fibers). The type of optical source and launch condition shall correspond with one of the categories defined in IEC 61280-4-1 (for multimode optical fibers) and IEC 61280-4-2 (for single mode optical fibers). The cabling interface adaptors consist of a number of test cords mating in accordance with IEC 61280-4-1 (for multimode optical fibers) and IEC 61280-4-2 (for single mode optical fibers). It is recommended to use a mandrel wrap and, where appropriate, cladding mode stripping techniques in order to maximize measurement repeatability. These should be established within the test cord. The mandrel used should be in accordance with IEC 61300-3-34 (5x20 mm for 62.5/125 µm optical fiber, 5x15 mm for 50/125 µm optical fiber).

- The test equipment shall be within the calibration period recommended by the manufacturer in order to achieve the manufacturer-specified measurement accuracy. This period is normally 12 months.
- The fiber optic launch cables and adapters must be of high quality and the cables shall not show excessive wear resulting from repetitive coiling and storing of the test equipment interface adapters. No index matching gel shall be used.
- The Pass or Fail condition for the link-under-test is determined by the results of the required individual tests.
- A Pass or Fail result for each parameter is determined by comparing the measured values with the specified test limits for that parameter.

4.7.3.2 Optional Requirements

- A representative of the end-user shall be invited to witness field testing. The representative shall be notified of the start date of the testing phase five (5) business days before testing commences.
- A representative of the end-user will select a random sample of 5% of the installed links. The representative (or his/her authorized delegate) shall test these randomly selected links and the results are to be stored.
- The results obtained shall be compared to the data provided by the installation contractor. If more than 2% of the sample results differ in terms of the pass/fail determination, the installation contractor under supervision of the end-user representative shall repeat 100% testing and/or repair if test fails and the cost for this shall be borne by the installation contractor.
- Where tests have to be conducted on machinery by a person who is authorized to do so, the Control Officer must issue instructions that the machinery has to be isolated and earthed, and after that he must permit the appointed operator to remove the earth's, if necessary, for the specific tests. In instances where the appointed operator is not also appointed as the supervisor, this appointed operator may remove the earth's only under the supervision of the supervisor. It is the responsibility of the supervisor who is conducting the tests to warn workers and, if necessary, to withdraw them from the machinery for the duration of the tests. When the tests have been completed, the earths must be replaced by the appointed operator, and the Control Officer must be notified that the machinery has been restored to the original condition.

If, for testing purposes, it is necessary to energize the machinery from the system while the machinery is in an abnormal condition, special arrangements must be made with the Managing Engineer: Power System Operations, or his deputy, so that prior decisions can be taken regarding the operating procedure. These activities must take place in accordance with the regulations, as far as they are applicable.

For the purposes of this regulation, an abnormal condition is one under which the machinery is not in a condition to take normal load because of broken bridging wires or because temporary connections have been made, or for a similar reason.

4.7.3.3 Performance Test Parameters

- ISO/IEC 11801 prescribes the single performance parameter for field testing of fiber optic links as link attenuation (alternative and equivalent term: insertion loss), when installing components compliant with this standard.
- The link attenuation shall be calculated in accordance to the specifications within ISO/IEC 11801. These specifications are representative of the following formulas:

- $\text{Link Attenuation} = \text{Cable_Attn} + \text{Connector_Attn} + \text{Splice_Attn}$
- $\text{Cable_Attn (dB)} = \text{Attenuation_Coefficient (dB/km)} * \text{Length (km)}$
- The values for the Attenuation_Coefficient are listed in the table below:
- Type of Optical Fiber Wavelength (nm) Attenuation_Coefficient (dB/km)
- Multimode 62.5/125 μm 850 3.5
- 1300 1.5
- Multimode 50/125 μm 850 3.5
- 1300 1.5
- Single-mode 1310 1.0
- 1550 1.0
- $\text{Connector_Attn (dB)} = \text{number of connector pairs} * \text{connector loss (dB)}$
- Maximum allowable connector loss = 0.75 dB
- $\text{Splice_Attn (dB)} = \text{number of splices (S)} * \text{splice loss (dB)}$
- Maximum allowable splice loss = 0.3 dB

Link attenuation does not include any active devices or passive devices other than cable, connectors, and splices, i.e. link attenuation does not include such devices as optical bypass switches, couplers, repeaters, or optical amplifiers.

- The above link test limits attenuation are based on the use of the One Reference Jumper Method specified by Method 1 of IEC 61280-4-1 for multimode and Method 1 of EN 61280-4-2 for single mode or the equivalent method. The user shall follow the procedures established by these standards or application notes to accurately conduct performance testing.
- The horizontal link (multimode): acceptable link attenuation for a multimode horizontal optical fiber cabling system is based on the maximum 90m distance. The horizontal link should be tested at 850 nm and 1300 nm in one direction in accordance with Method 1 of IEC 61280-4-1, One Reference Jumper.
- The backbone link (multimode) shall be tested in one direction at both operating wavelengths to account for attenuation deltas associated with wavelength.
- Multimode backbone links shall be tested at 850 nm and 1300 nm in accordance with Method 1 of IEC 61280-4-1. Because backbone length and the potential number of splices vary depending upon site conditions, the link attenuation equation (Section 12.2.12 B.2) shall be used to determine limit (acceptance) values.
- Singlemode backbone links shall be tested at 1310 nm and 1550 nm in accordance with IEC 61280-4-2, One Reference Jumper or the equivalent method. All single mode links shall be certified with test tools using laser light sources at 1310 nm and 1550 nm (See Note below).

- Links destined to be used with network applications that use laser light sources (underfilled launch conditions) shall be tested with test equipment based on laser light sources categorized by a Coupled Power Ratio (CPR) of Category 2, Underfilled, per IEC 60825-2. This rule should be followed for cabling systems to support Gigabit Ethernet. Gigabit Ethernet only specifies laser light sources. Field test equipment based on LED (light emitting diode) light sources is a Category 1 device per IEC 60825-2 and typically yields high attenuation results. For Gigabit Ethernet compliant certification (IEEE std 802.3z application), use test equipment which uses a VCSEL (Vertical cavity surface emitting laser) at 850 nm (compliant with 1000BASE-SX) and an FP laser at 1310 nm (compliant with 1000BASELX).
- Each fiber optical link terminated with an optical adapter system which does not impose a Transmission direction because the adapters are not or cannot be ganged should be tested and Documented in both direction since the direction of the signal transmission cannot be predicted at the time of installation.

4.7.3.4 Test Result Documentation

- The test result information for each link shall be recorded in the memory of the field test equipment upon completion of the test.
- The test result records saved by the test equipment shall be transferred into a Window based database utility that allows for the maintenance, inspection and archiving of these test Records. A guarantee must be made that these results are transferred to the PC unaltered, i.e. "as saved in the test equipment" at the end of each test. The popular 'csv' format (comma separated value format) which does not provide adequate protection shall not be acceptable.
- The database for the completed job shall be stored and delivered on CD-ROM; this CD-ROM shall include the software tools required to view, inspect, and print any selection of test reports.
- A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information:
 - The identification of the link in accordance with the naming convention defined in the overall system documentation.
 - The overall Pass/Fail evaluation of the link-under-test including the Attenuation worst case margin (margin is defined as the difference between the measured value and the test limit value).
 - The date and time the test results were saved in the memory of the test equipment.
- General Information to be provided in the electronic data base containing the test result information for each link:
 - The identification of the customer site as specified by the end-user
 - The overall Pass/Fail evaluation of the link-under-test
 - The name of the standard selected to execute the stored test results
 - The cable type and the value of the 'index of refraction' used for length calculations
 - The date and time the test results were saved in the memory of the test equipment
 - The brand name, model and serial number of the test equipment
 - The revision of the test equipment software and the revision of the test standards database in the test equipment.
- The detailed test results data to be provided in the electronic database for each tested Optical fiber must contain the following information:
 - The identification of the link/fiber in accordance with the naming convention defined in the overall system documentation.
 - The attenuation measured at each wavelength, the test limit calculated for the corresponding wavelength and the margin (difference between the measured attenuation and the test limit value).
 - The link length shall be reported for each optical fiber for which the test limit was calculated based on the formulas provided in this document.

4.7.3.5 Additional Fiber Testing Requirements

- All fiber cables must be tested by a qualified installer with an Optical Time Domain Reflectometer (OTDR) in the following instances:
 - After installation to verify that no damage occurred to any fiber and that maximum-bending radius are adhere to.
 - After completion of each splice and termination to verify the loss of each splice.
- End to end testing. This must always be done bi-directional as specified in document IEC 60793-1-40.
- Bi-directional testing is the only way to test inline splices for loss and ensure that accurate readings are obtained.
- Results must be available for future reference on software until received and accepted by CoT.
- Re-testing to be done on request of CoT with a power source and light meter.

4.7.3.6 Acceptance Of Fibre Testing

- On completion of a fiber link, the installer must provide a drawing (Visio) to CTMM indicating all splice locations with distances from both ends of the link. The testing may only be done once the installation is completed, meaning that all splicing trays and splicing organizers or joint enclosures must be closed. Coiling of slack in manholes or on poles and slack boxes must also be completed.
- The acceptance testing section must do acceptance testing of a fiber link with an OTDR or a light source and power meter, at appropriate wavelengths, from both ends. The reading must then be recorded and the bi-directional event and average link loss must be calculated.
- The test results and drawings must be handed to CTMM in both hard- and soft copy format.
- Optical path losses
 - Splice loss: 0.1dB to 0.4dB Bi-directional (Ave between A & B)
 - Connector Loss: 0.4 dB/Connection
 - Return Loss: < -45dB/mated connection.

4.7.4 Safety Regulations

- Fiber ends and unmatched connectors may emit laser radiation, which can create permanent damage to person's eyes. Avoid direct eye contact/exposure with beam. Cap plugs should be kept on all unmatched connectors. Do not inspect with magnifying instruments unless the system is disconnected.
- All loose fiber pieces and off cuts should be controlled and properly disposed of into the waste bins in working area. Do not throw pieces of fiber away at the worksites, as they could cause injury to the public.
- Adhere to safety, health, and disposal information given on container label or Material Safety Data Sheet of solvent used to clean fiber.

4.7.5 General

- The contractor shall be responsible for the jointing/splicing and shall therefore be equipped with all the necessary specialized tools and test equipment and shall have trained staff capable of performing such a function.
- The contractor shall describe the joining method to be employed on the optical fiber.
- All joints shall be of fusion type and shall be to the following standard.
- Single mode:
 - Average splice loss - 0.15 dB
 - Mean splice loss - 0.1 dB
- The average splice loss is the numerical average of an individual splice as measured in both directions with an OTDR.
- Mean splice loss is the sum of all individual splice losses on a particular fiber divided by the total number of splices on that fiber.
- Joints with an average joint loss higher than the specified value shall be broken and redone.
- The optical fiber shall be terminated in a 19 inch rack mountable patch-panel complete with type ST connectors and mid-coupler as required.

- Specially designed bunny clips, organizers and tubing shall be used to control bend radius and neatly route the fibers and pigtails for securely managing fiber splicing and patching in the patch-panels.
- Fibers shall be numbered properly into the patch-panel or joint-box. Fibers shall correspond between termination points (one to one).
- Mid-couplers in patch-panels shall be covered with blanking plugs, which snaps unto unused holes of connectors to protect panels and prevents ingress of dust and moisture.

4.7.6 Certification Procedure

- Process as follows:
 - Every Monday the contractor must hand in a complete set of documentation (2 sets) per site as agreed upon.
 - Complete documentation includes: Test Results, floor plans indicating floor layout, Fiber Route drawing, a signed Certification document and a signed and filled in Checklists.
 - A physical site inspection will be done on the same day.
- Thereafter the certification authority has 5 working days to go through all the documentation and give feedback to the contractor
- Should the documentation and physical be correct and according to standards, then the certification authority will issue the contractor with the relevant site certificate the following Monday during the meeting.
- Should the physical inspection fail, then a cost per site (cost may vary as per certification authority re-certification costs) will be enforced and will be payable in advance. This cost is payable by the contractor.
- Contractor to hand in a complete set of documentation to CoT in order for CoT to sign the site off on their behalf. Documentation should consist of – Test results for copper and fiber in a hard and soft copy format, floor plans indication the layout, cabinet layout, checklists.

4.7.7 Documentation Including Drawings And Reports

- The supplier shall supply documentation as required.
- All drawings, test results and invoices must be submitted to the City of Tshwane within 5 working days after completion of a specified cabling installation. If drawings are not available, it is the responsibility of the contractor to compile the relevant drawing. All changes to the existing cabling infrastructure must be indicated on a revised drawing.
- For fiber installations, a fiber routing drawing and fiber layout drawing must accompany the invoice.
- Invoices will not be entertained without all the necessary documentation being provided.
- All documentation called for shall be provided in files, which comply with the following requirements:
 - I. Supplied in English
 - II. A4 paper size
 - III. Of construction that can open flat on any page
 - IV. Any drawings and descriptions shall conform to the A4 size. Larger drawings shall be folded in a single panel along the 200 mm axis of the standard A4 size.
 - V. Different sections of the documentation shall be separated by means of thumb tag separators.
- The documentation shall include the following:
 - I. Index
 - II. Test certificates for site tests of fibre before installation
 - III. Details of fibre numbering and colour coding
 - IV. Complete cad drawings of tube connections and pathways
- The contractor will supply CoT with a report on a regular basis as per fix reference clause.
- The report must indicate the following (and also other relevant information):
 - A schedule containing the call id, nr of points to be installed, assigned to which cable team etc
 - Amount of points installed

- The amount of calls received
- The amount of calls completed
- The total amount invoiced for the month.

4.7.8 Equipment

- All teams working at CoT must be issued with all the tools required to do the installations. No equipment, including ladders, may be borrowed from CoT at any stage. Sufficient provision must be made for ladders no furniture may be used to climb upon.
- CoT must be provided with a schedule of tools issued to each team.
- Testers must be calibrated annually and the test certificate from the contractor must be made available to CoT.
- At least one spare set of test equipment must be available in case of faulty equipment.

4.7.9 Accreditation

- All fiber cabling teams will be evaluated and accredited to work on CoT sites, no person that is not accredited will be allowed on a site.
- Fiber cabling teams must wear clearly identifiable protective clothing on site at all times.
- Fiber cabling teams must be issued with a job card indicating stock provided for the specific job.
- The contact person must be contacted on site to check access before driving to the site.
- Termination points must be tested within one day of completion.
- On completion of the job the stock used must be noted on the job card for invoice purposes.
- The following documentation must be handed in, per job, within 5 working days for invoicing:
 - Completed Job card
 - Test results
 - Drawings
 - Invoice

4.7.10 Project And Fibre Repair Teams

Fiber cabling teams will be divided into project and fiber repair teams.

- **Project Teams:** Project teams will only be assigned to projects and should consist of at least four persons with a supervisor. Project teams will only be assigned to projects (generally assigned to new Fiber Optics installations whether it is the fiber cabling of an existing building or the fiber cabling of a new building or section of a building). It is the responsibility of the successful Tenderer to ensure that sufficient project teams are available to wire several projects concurrently as the situation demands. However, ICT reserve the right to notify the contractor to deploy additional teams to complete specified projects or if the contractor fails to deal with the situation or if the workload increases to such an extent as to warrant additional teams. After the successful contractor is appointed, ICT will meet with the contractor to discuss the projects, the number of teams necessary and the deployment of the teams. All costs must be included in the labor charges quoted in the schedules. The contractor cannot invoice separately for these project teams/supervisor. On projects, due to cut-offs, cable measurement will be done as follow: measurement of installed cable as per test result plus 3% of this measurement. Off-cuts must be removed from site by the contractor.
- **Fiber Repair Teams:** Fiber Repair teams shall consist of at least two persons. The successful contractor must appoint a supervisor to firstly manage the fiber repair teams and also to ensure that sufficient stock is available. All fiber repair calls should be completed within 48 hours after receipt of official order. Again, if Tshwane determines that the work load is strenuous, it will inform the contractor to deploy additional teams with immediate effect. This cost must be included in the labor charges quoted in the schedules. The contractor cannot invoice separately for these fiber repair teams/supervisor. CoT will issue the cable teams with calls, and will not issue new calls to a particular team unless all calls have signed-off job cards from the customer.

Tshwane staff is required to log fiber repair/project calls at the service desk. The contractor's supervisor will on a daily basis receive a list of calls that was logged and will every morning prepare the necessary quotes (from the Tender prices). ICT will forward the quotes to the necessary Department/Division for the necessary SAP order to continue with the installation. As soon as the SAP order is received, the contractor will ensure that the work is completed within the specified period. For projects, the contractor's supervisor need to scope before the quote is prepared.

Fiber repairs: The successful tenderer must visit the site and prepare a quote for the repairs on the same day that the call was logged.

Every fiber repair team must be equipped with his/her own test meter to immediately test the fiber after installation. The test must be handed to the supervisor to generate the necessary invoice. Invoices and test results should also be done on a daily basis as to facilitate payment on a regular basis. It is the successful tender's responsibility to provide all tools and test equipment and to ensure that the equipment is calibrated according to manufacturer's standards. The contractor shall employ or contract suitably qualified and trained personnel to provide the Services to Tshwane in terms of this agreement. The personnel must be certified and under no circumstances will Tshwane be used as a training facility.

The contractor must appoint an on-site quality controller (responsible for project and maintenance quality control) to assist the supervisor with the invoicing process and to inspect all sites in conjunction with the quality controller of ICT. This cost must be included in the labor charges quoted in the schedules. The contractor cannot invoice separately for this person. Tshwane will provide office space and computers (Win XP with MS Office) for the quality controller and supervisor. However, software to download test results and quoting modules or other software necessary to complete the functions are the responsibility of the successful contractor.

An on-site resource must be provided who is skilled in Visio/GIS, and who will be responsible for updating of all drawings (route/layout).

An on-site resource must be provided who will be responsible for project and maintenance single quotes, purchase orders, setting up of teams (project and maintenance), allocating jobs to the various teams and ensuring the allocated jobs are completed successfully.

4.7.11 Standby Teams

The contractor must make provision for teams available for the following:

- After hours
- Weekend
- Holiday periods including December festive season.

It is the contractor's responsibility to keep CoT up to date on team members, contact numbers etc. A standby roster must be provided with contact person and number for after hour, weekend and other events.

Fiber: Should main fiber links be physically damaged, it must be repaired same day. If this is after hours, or over weekends, the same rule will apply – i.e. must be repaired same day.

The contractor must keep all the necessary stock and testing equipment to do emergency repairs after hours.

Please note – all costs associated with standby teams are deemed to be included in the tender prices except for the special standby team of the December close down period. There is a

separate price item to provide for this – must include team, vehicle, transport and all necessary equipment and tools.

4.7.12 Installation Practices

Contractor to adhere to the following installation practices:

- All fiber routes and cabinet positions must be indicated on the relevant floor plan before installation commences.
- Close ceilings and trunking.
- Do termination Labelling and testing of Fiber.
- Repair any damage to site.
- Clean the site.
- Update the drawing.
- Complete quality control checklist of installation.

4.7.13 Earthing

The attention of all persons responsible and artisans is drawn to regulation EMR(13)(1)(b) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), with regard to earthing.

4.8 Installations Pertaining Mostly To OPGW

This section relates to the requirements of the Electrical Department and includes mostly OPGW installations.

Abbreviation	Explanation
ADSS	All Dielectric Self-supporting
CoT	City of Tshwane
HDD	Heavy-duty Duct
HDPE	High-density Polyethylene
HV	High Voltage
IEC	International Electrotechnical Commission
IT	Information Technology
ITU-T	International Telecommunications Unions – Telecommunications Sector
MASS	Metallic Armoured Self-supporting
NCS	National Calibration Service
NRS	New Revised Standards
ODF	Optical Distribution Frame (Patch Panel)
OPGW	Optical Ground Wire
OTDR	Optical Time Domain Reflectometer
TEE	Tshwane Energy and Electricity

4.8.1 Description of Material

4.8.1.1 Duct fiber-optic cable

- Completely non-metallic cable containing optical fibers.
- A 9 µm/125 µm single-mode fiber compliant with ITU-T G652 standard.
- The cable shall be 48 core duct fiber-optic cable.

4.8.1.2 Optical Ground Wire (OPGW)

- Loose buffer type of optical fiber unit in aluminum-covered stainless steel tube
- Round AS wire (Aluminum-clad Steel wire)
- A 9 µm/125 µm single-mode fiber compliant with ITU-T G652 shall be indefinite.
- Overhead Fiber Optic cable shall be 48 core OPGW

4.8.2 Background

This tender complements an existing optical network infrastructure in the Tshwane Metropolitan area. This additional optical fiber is required to extend the deployment of optical fiber to the electrical satellite substations identified points of presence via existing infrastructure owned by the City of Tshwane on an as and required basis. The data protection and communication network of the electricity Division services the various users of the electricity Division. At present, the primary task of the system is to provide communication for the power line protection systems. In addition, it provides communication to various substation emergency telephone networks, the Scada system and various load and quality monitoring system. The network presently services the entire 132 kV substation and the 206 secondary substations.

4.8.3 Extent Of Work

4.8.3.1 OPGW Cable

OPGW installation under live line condition, i.e. with all circuits charged to the rated line voltage as specified in this section shall be generally in accordance with the NRS 061-2 Guide to the Installation of Overhead Transmission Line Conductors (with latest revision), with additional instructions and precautions for live line working and fiber optic cable handling. Some of the cable may be installed in off-line condition also. The stringing procedure shall be submitted by the Contractor prior to stringing for Employer's approval. A tower structural analysis shall be carried out by the Contractor, based on the relevant data to be provided by Employer, to ensure that with the replacement of existing earth wire with the OPGW cable, the tower members remain within the statutory safety limits as per TEE.

The scope of supply of the optical cable includes the assessment, supply and installation of all required fittings and hardware such as Tension assembly, Suspension assembly, Vibration dampers, Reinforcing rods, earthing clamps, down lead clamps, splice enclosure etc. The Bidder shall provide documentation justifying the adequacy and suitability of the hardware supplied. The Contractor shall determine the exact requirements of all accessories required to install and secure the OPGW. The OPGW hardware fittings and accessories shall follow the general requirements regarding design, materials, dimensions & tolerances, protection against corrosion and markings as specified in EN 61284: 1998 (IEC 61284:1997). The damper placement chart for spans ranging from 100m to 1100m shall be submitted by the successful Bidder. Placement charts should be duly supported with relevant technical documents and sample calculations.

Generic Specification:

- Fiber-optic cables between the substations (OPGW, duct or aerial) shall be single-mode G652D type.
- If the G652D type optic fiber cannot provide the required bandwidth, or if there is a requirement for long-haul links, then an improved ITU-T type of single-mode optic fiber can be used.
- However, the new optic fiber type must be backward compatible with the G652D type optic fiber and would require approval by the Electronics Services Department.
- The guarantee against faulty material shall be stated.
- The fiber-optic cable shall be designed that the performance is reliable in normal and accepted use.
- The contractor shall provide all necessary labor, tools, equipment and material, to perform the works.
- All materials to be utilized on site, are subject prior to approval from TEE Project manager

4.8.3.2 Duct Fiber-Optic Cable

The duct cable and installation must comply with the national standards NRS 088-1 and NRS 088-2. The duct shall be enclosed in a Class 6 High-density Polyethylene (HDPE) protective tube which is orange in color.

Duct cabling requirements:

- The fiber-optic duct cable shall be installed in directly buried Class 6 HDPE piping.
- The duct cable with the Class 6 HDPE piping shall be installed within the trench at a minimum depth of 1200 mm below ground level.
- If the substation trenches are available, the duct cable with the Class 6 HDPE piping shall be installed in the trench, the minimum depth of which shall be 150 mm below ground level.
- A single length of duct cable shall be utilized; no joints will be tolerated.
- Only unarmoured duct cable shall be used in TEE fiber installations.
- The minimum bending radius specified by the manufacturer shall be maintained when entering the trench. Care shall be taken to maintain the bending radius specification when guiding the duct cable from the substation trench towards the Control Room floor.
- If the joint box for the duct cable is located on a tower or gantry that is not located in the substation HV Yard, then a 1 m radius concrete platform would be required to be built, which is specified in the document.

4.8.3.3 Substation Gantry Point Requirements

- The Contractor shall ensure that vibration dampers have been fitted to the cable adjacent to the tension and suspension clamps required by CoT. Necessary precautions shall be taken to ensure that the minimum bending radius of the cable is not compromised during installation and when the cable is fed down from the structure.
- The cable must be fixed to the OUTSIDE of the gantry.
- The OPGW cable must be BONDED to the gantry at all times.
- At the joint positions, down-lead tails shall be long enough to allow adjacent lengths to be connected using conventional fusion splicing techniques. The down-lead tails shall be neatly fixed to the gantry, tower or pole using suitable down-lead clamps spaced on every lattice crossing or at a maximum of 2 m apart. This shall be done such that the final joint assembly and the aerial fiber-optic cables (OPGW/ADSS/MASS) are secured to the structure, and that the cable does not chafe against the structure at any location.
- The aerial fiber-optic cables shall be connected to the gantry such that there is sufficient slack left to allow the splice enclosure to reach ground level. Upon installation, the splice enclosure shall be temporarily assembled on the structure first before cutting the fiber, and not at ground level. This is to ensure that the two cables are of the correct length when permanently assembled again. The splice enclosure shall be mounted approximately 1.5 m to 2 m above ground level. The HDPE pipe shall be connected to the galvanized steel or stainless steel pipe, and shall be sealed with UV-resistant silicone sealer or heat shrink tubing at the top end. This steel pipe shall be secured to the gantry leg with a minimum of four stainless steel 'band-it' straps without any insulation in-between.
- Any strengthening steelwork or attachment shall be fitted with the use of existing bolt-holes or clamping attachments. No extra drilling shall be done on the steelwork and the attachments shall be made of appropriate, hot-dipped galvanized material.

NOTE: In exceptional circumstances, Distribution ADSS and Helically Wrapped Fiber can be brought directly to the patch panel or Optical Distribution Frame (ODF).

4.8.3.4 Fiber-optic cable installation within control rooms

The ducting shall be secured to the cable trench wall with a minimum of two U-clamps. When entering the Control Room floor, the top of the HDPE pipe shall be sealed with UV-resistant silicone sealer or heat-shrink tubing. If the cable trench does not extend to just below the cabinet, the fiber cable shall be extended via the overhead racking and the installation shall be documented and approved by the Substations department. In cases the trench extends further underneath the cabinets, the duct cable shall be directly glanded onto the fiber cabinet, while maintaining the bending radius requirements.

i. Preparatory work

Prior to going on site, the installation personnel or approved Contractor shall ensure that the fiber-optic cabinet for terminating the fiber has been installed. In the case where other fiber-optic cables are already installed and active, the cabinet should be regarded as live and should only be worked on under the supervision of relevant CoT personnel. When terminating the duct cable, the instructions of the cable supplier shall always be adhered to.

ii. Fiber-optic cable terminating in 19" cabinet

a. **Glanding and splicing**

The fiber-optic cable shall be glanded on the outer sheath using a compression gland where it enters the 19" cabinet. At least 6 m of slack shall be left inside the cabinet for splicing.

b. **Termination of the patch panel (ODF)**

- Existing installation use ST Midcouplers.
- Terminate from left to right on the fiber panel.
- Each midcoupler must be labelled numerically (1-48).
- All Labelling must be computer printed type label, black on white.
- Each fiber cable to be labelled with oval grip type and fastened with cable ties indicating fiber type, number of cores, feeding from and feeding to.
- Fiber panel must be recessed inside the cabinet to accommodate all leads.
- 2m slack must be left inside the splice tray.

c. **Fiber Tails**

Only approved 1m ST fiber tail must be used

d. **Fiber Patch Cords**

- Patch cord lengths: 0,5m, 1m & 3m.
- Patch cord connector type:
 - ST - SC
 - ST - ST
 - ST - LC
- Colour: Yellow cords for Single Mode

4.8.4 Delivery of Material and Shipping Instructions

The Contractor shall be responsible for the safe-handling, off-loading and transport of all materials into the storage site.

The Contractor shall provide his/her own cable floats, trailers, trucks, etc., for transportation of materials between storage site and working site.

All cable drums and packing crates shall be clearly marked with the following:

- Name of manufacturer
- Place of manufacturer
- Type of cable or equipment
- Size and number of cores
- Identification code
- Length of the cable on the drum, if applicable

4.8.5 Testing Procedures

This procedure covers the testing of newly-installed Fiber Optic Cable Systems within Tshwane Electricity and Energy, as well as any subsequent repair to existing installations.

4.8.5.1 Splice Acceptance Procedures

All joints shall be of the fusion type and shall be to the following standard:

Fiber Splice Loss	Class A	Class B
Single Mode Fiber		
Maximum Splice Loss	≤ 0.1 dB	≤ 0.075 dB
Mean Splice Loss	≤ 0.05 dB	≤ 0.05 dB

Any joint which has a measured loss higher than the specified value shall be broken and redone a minimum of three times. If the splice is still not within specification, a note to this effect should be made in the test documentation.

4.8.5.2 Fiber Optic Testing Procedure

- The Aim of these tests is to satisfy Tshwane Energy and Electricity that the fiber optic installation is acceptable.
- After installation, or repair, the complete system shall be tested from end to end. TEE shall be given the opportunity to carry out final acceptance testing in conjunction with the Contractor's staff. TEE's presence shall not relieve the Contractor of his responsibility for the satisfactory performance of the equipment during site testing and thereafter through to the end of the warranty period.
- For cable systems with one or more joints in the total length the following tests shall be required: Using an Optical Time Domain Reflectometer (OTDR), the three basic measurements (i.e. attenuation coefficient, length and position and loss of splice joints) should be made in accordance with IEC 60793-1 and EIA 455.
- The following data shall be available on request: OTDR instrument (including make, model and manuals as well as a copy of the trace analysis software), calibration data (central wavelength(s) as verified by an NCS-approved facility) and launch conditions. Splice machine (including make, model and manuals).
- All the information must be summarized in table form.
- The total end-to-end loss (ODF to ODF) must be measured from both ends using a light source and an optical power meter. Results for both 1310nm and 1550nm windows are required for line lengths up to 50km. Lines longer than 50km are only required to be tested at 1550nm. Details of the instrumentation and launch conditions used shall be provided in the documentation called for in clause 4.
- Commissioning shall be done in close co-operation with, and to the full satisfaction of TEE Communication Section.
- TEE Communication section reserves the right to have several technicians actively participate in the fiber section link tests with the object of them gaining intimate knowledge of the testing procedures.

4.8.5.3 Documentation

- i) Tenderers are required to complete the following schedule in accordance with the NRS 061:2002 specification.

Schedule A: Purchaser's specific requirements and

Schedule B: Particulars of equipment to be supplied.

Item	Clause	Description	Schedule A	Schedule B
B.1	4.1.4	Grease conductor as per IEC 61089? No	_____	XXXXXXXXXX
	4.1.5	Pollution level, if other than heavy	_____	XXXXXXXXXX
		Maximum temperature, if other than 50 °C °C	_____	XXXXXXXXXX
		Minimum temperature, if other than –10 °C °C	_____	XXXXXXXXXX
		Maximum wind speed, if other than 36 m/s m/s	_____	XXXXXXXXXX
		Route altitude, if other than 200 m 1600 m	_____	XXXXXXXXXX
	4.1.6	Name of manufacturer	XXXXXXXXXX	_____
		Place of manufacturer	XXXXXXXXXX	_____
		Manufacturer's reference number	XXXXXXXXXX	_____
B.2	4.2.1.2	Type of fibre carrier G652	_____	XXXXXXXXXX
	4.2.2.1	OPGW 1 s current rating; > 15,5 kA	_____	XXXXXXXXXX
	4.2.2.2	Stranding and wire diameter	XXXXXXXXXX	_____
B.3	4.3.1.1	Number of fibres 48	_____	XXXXXXXXXX
	4.3.1.3	Cladding configuration (depressed or matched). If other, state details.	_____	XXXXXXXXXX
	4.3.1.8	Is a fibre carrier gel required? Yes	_____	XXXXXXXXXX
	4.3.2	Conductor material	XXXXXXXXXX	_____
		Nominal cross-section	XXXXXXXXXX	_____
		Actual cross-sectional area	XXXXXXXXXX	_____
		Maximum overall diameter	XXXXXXXXXX	_____
		Maximum mass per meter of cable kg/m	XXXXXXXXXX	_____
		Rated tensile strength (RTS)	XXXXXXXXXX	_____
		Initial modulus of elasticity	XXXXXXXXXX	_____
		Direction of lay of outer layer	XXXXXXXXXX	_____
		DC resistance at 20 °C / km Ω	XXXXXXXXXX	_____
		Continuous current carrying capability A	XXXXXXXXXX	_____
	4.3.2.1	Complete details of cable construction, including measures to minimise hydrogen	XXXXXXXXXX	_____

		absorption and water ingress.			
B.4	4.3.2.2	System fault level	31,5 kA	_____	xxxxxxxxxx
	4.4.1	Is a sample required?	Yes	_____	xxxxxxxxxx
	4.4.3	Length of sample, if not 1 m		_____	xxxxxxxxxx
B.5	6.3	Is documentation required?	Yes	_____	xxxxxxxxxx
B.6	6.2.1	Wound length of OPGW		xxxxxxxxxx	_____

ii) Tenderers are required to complete the following schedule of particulars in accordance with the NRS 088-1:2007 specification.

Schedule A: Purchaser's specific requirements

Schedule B: Guarantees and particulars of equipment to be supplied (to be completed by tenderer)

Items	Sub-clause	Description	Schedule A	Schedule B
1	4.1.1	Number of fibers		
2	4.1.1	Type of fiber (e.g. type B 1.1 single-mode fiber as in NRS 081)		
3	4.2.2	Armoring required	Yes / No	
4	4.2.2	Type of armoring (CST or SWA)		
5	4.2.5	Details of fiber color coding	As in EIA/TIA 598-C	
6	4.2.6	Measure taken to prevent water ingress	xxxxxxxxxxxxxx	
7	4.2.7	Toxicity and dermatological safety	Yes	
8	4.2.9	Cable tension for 0.2% fiber strain N	xxxxxxxxxxxxxx	
9	5.2.1	Availability of type test reports. If not available, specify date when available	xxxxxxxxxxxxxx	Yes / No dd/mm/yyyy
10	6.2.1	Wound length of cable drum m	xxxxxxxxxxxxxx	

11	6.2.1	Treated wooden drum required	Yes / No	
12	7.1 (a)	Cable construction drawing number	xxxxxxxxxxxxxx	
13	7.5 (d)	Cable mass per unit length kg/km	xxxxxxxxxxxxxx	
14	7.6 (b)	Effective group index of refraction at 1310 nm/ 1550 nm	xxxxxxxxxxxxxx	1310 nm 1550 nm

iii) All documentation called for shall be provided in hard covered ring files which comply with the following requirements:

- Supplied in English.
- A4 Paper Size.
- Of a construction that can open flat on any page.
- Any drawings and descriptions included shall conform to the A4 series (295mm x 220mm). Larger Drawings shall be folded in a single panel along the 200 mm axis of the standard A4 size. Drawings which must be folded in two directions are not acceptable.
- Different sections of the documentation shall be separated by means of thumb-tag separators.

iv) The documentation shall include the following:

- Index.
- Details of fiber numbering and color coding.
- Refractive index and backscatter coefficient of fibers incorporated in the cable(s)
- Manufacturer's specification sheets, including details of cable construction, for opgw, duct and aerial
- Fiber over-length (%) and helix factor in all cable types supplied
- System Diagram showing joint locations and distances between joints.
- Test Certificates for site tests of fiber before installation.
- Table of Joint Losses and Distances.
- OTDR Traces for each fiber in both directions and at both 1310nm and 1550nm Windows for lines up to 50km in length. For longer lines, only the results for 1550nm are required. (Paper copy and electronic copy on Disc)
- Table of end-to-end attenuation using the light source/power meter technique.

- List of manufacturer's code numbers of all hardware used in the installation (strain assemblies, suspension assemblies, down-lead clamps, earth-bonds etc)
- Complete set of drawings of all hardware used - strain assemblies, suspension assemblies, down-lead clamps, earth-bonds, joint enclosures and ODFs (when supplied as part of the main contract)

4.8.6 Specifications and Standards

International document(s)

Document number	Document Title	Revision or Date of Issue
TIA/EIA-598-A	Optical fiber cable color coding	Latest
ITU-T G652	Characteristics of a single-mode optical fiber cable	Latest

South African national document(s)

Document Number	Document Title	Revision or Date of Issue
NRS 061-2	Specification for Overhead Ground Wire with Optical Fiber – Part 2: Installation Guidelines	2004
NRS 088-1	Duct and direct-buried underground fiber-optic cable – Part 1: Product specification	2007
NRS 088-2	Duct and direct-buried underground fiber-optic cable – Part 2: Installation guidelines	2009

Note: The fact that the bid process will take place prior to the actual appointments and job executions shall not limit the contractor from obtaining the latest standards and specifications.

4.8.7 Summary List of Requirements and Returnable Documents

Tenderers are required to comply with the following requirements and failure to comply will lead into the tenderer being disqualified. Full technical and descriptive details relating to all the items offered shall be submitted with the tender document so that the offer can be fully evaluated.

The information shall include:

- Brochures detailing the specific items offered.
- Details of guarantee for each item offered
- Completed technical schedule A and B
- Details of OTDR (including calibration date) and Splicing Machine

SECTION 3: PUBLIC WI-FI

1. INTRODUCTION AND PURPOSE

The CoT has established a public Wi-Fi network at various locations throughout the CoT that provides free Wi-Fi services to the public. The CoT is therefore requesting bidders to provide bids to operate, maintain and expand the current public Wi-Fi network on an as and when required basis. CoT will prescribe some technical specifications and criteria and all bids must meet the minimum criteria.

In case the bidder has not quoted for any of the item that are essential for the completion of the project, it shall be presumed that cost of such items is covered as part of some other sub-system of the offer and no extra amount shall be payable by CoT. The successful bidder shall be required to supply all material/goods/services required to make the equipment operative as per the requirements, after integrating with the existing network. The bidder shall include for all costs, maintenance, material, installation, configuration, and commissioning charges in the bid.

2. BACKGROUND

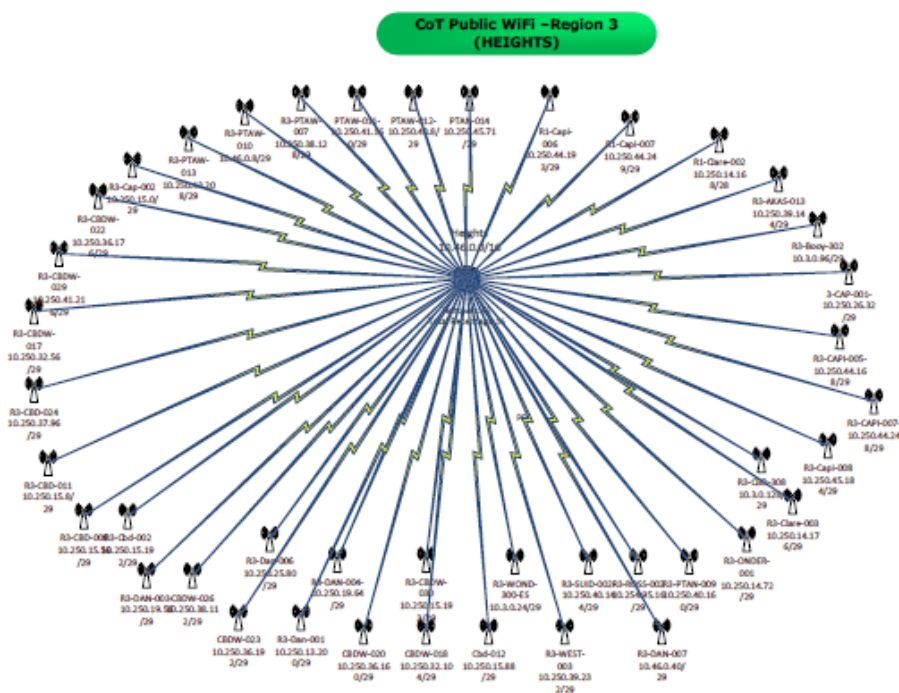
2.1 BACKGROUND INFORMATION

TshWi-Fi is a free public Wi-Fi network created by the City of Tshwane to develop and empower its citizens through connectivity. Focusing on the generation of the future, TshWi-Fi creates spaces that have easy-to-access Wi-Fi.

The infrastructure consists of FIZ's (Free Internet Zones) at the end-user side that provide the AP's (Access Points). These in turn mostly communicate via radios to High Sites and in turn this communicates with the core in Centurion that provides the Internet breakout.

The old star topology model does not incorporate a lot of redundancy. In addition, a lot of the high sites are linked to other high sites as can be seen from the diagram below.

Below diagram illustrates the FIZ's that are connected to for example Heights High Site. The diagram illustrates the dependency of the FIZ's on the High Sites. As can be seen, there is a very high dependency of the FIZ's on the High Sites and when a high site goes down, multiple FIZ's are down.



2.2 AIM/OBJECTIVES

The key objectives for this bid are:

- **All Infrastructure**
 - Sufficiently sized Internet breakout
 - Establish a fully functional Network Operating center for proactive monitoring of the Public Wi-Fi network.
 - Migrate all data and statistics for service continuity.
 - Ensure that the support and maintenance for the entire Public Wi-Fi network is conducted within the stipulated Service Level Agreement.
 - Establish a service desk where the public can log calls.
 - Implement IP network security measures for the service.
- **Existing Infrastructure**
 - Provide support, maintain, and operate the existing infrastructure inclusive of critical spares where required.
- **Expansion Infrastructure**
 - Supply, configure, install, and maintain the equipment needed to establish the Public Wi-Fi network in new Free Internet Zones (FIZ) with all required infrastructure and enabling peripherals.
 - Apply for all electrical connections required to provide electricity to the required elements of the Wi-Fi network inclusive of the FIZ, high sites etcetera. In most cases the FIZ's utilize electricity provided by CoT, but in some instances by ESKOM.

2.3 LOCATION OF THE PROJECT

CoT will provide a list of places where FIZ's need to be provided and the successful bidder therefore needs to install them as per this directive. Generally, and within the borders of Tshwane, the following is included:

- Educational facilities like Schools and Libraries
- Health facilities like Clinics, Hospitals etc.
- Parks or other recreational facilities
- Sport Centers
- Community Service Points like Customer Care Sites
- Transit hubs
- City and Community Halls
- Economically Disadvantaged Communities
- Tourism sites like heritage sites, museums etcetera
- Council deployed reception areas (Council Offices)
- Retirement Homes
- Informal Settlements
- CBD or other populated business areas (possibility of providing a Wi-Fi blanket)

- Residential areas where APs are located within walking distance (every 4 to 5 km)
- Any area that the CoT may deem necessary for Wi-Fi services.

2.4 STAKEHOLDERS

Stakeholders can include a variety of parties.

- Community leaders and Councillors
- Several Departments of CoT:
 - Corporate and Shared Service, more specific ICT
 - Utility Services Department, more specific the Energy and Electricity for the required electrical connections, Bulk Water for access to high sites.
 - Roads and Transport Department w.r.t. way leaves.
 - Tshwane Metro Police Department w.r.t. safety/security

2.5 BENEFICIARIES

Beneficiaries are the public and community. CoT employees can also benefit from this for example Wi-Fi for general workers or Wi-Fi at educational services.

2.6 CONTROL AND MONITORING MEASURES

The broad control and monitoring measures are provided below - however note other measures and controls in the rest of this bid specification.

- Service Level Agreements: Ensure that the support and maintenance for the entire Public Wi-Fi network is conducted within the stipulated Service Level Agreement.
- Reporting: Reporting includes but are not limited to monthly operational reports (inclusive of SLA statistics), monthly business reports, etc.
- Expansion: New installations will need to be inspected by a CoT representative and an acceptance form/job card needs to be signed.
- Asset verification via maintenance processes.
- Decommissioning of Equipment: Decommissioned equipment needs to be dismantled and transported to a safe storage location and the asset procedures need to be followed.

3. PROJECT SCOPE

3.1 DURATION OF CONTRACT

This tender shall be for a duration of 3 years.

3.2 SERVICES TO CONSIDER

Bidders need to consider the following services as part of their bids:

- Internet Related Services:
 - Internet Breakout: Sufficiently sized Internet Breakout.
 - Security: URL (Uniform Resource Locator) filtering (prevent access to prohibited websites) and other security solutions.
 - Website(s), landing page etc.
- Existing Services:
 - Provide support, maintain, and operate the existing infrastructure (refer Annexure 1).
 - Report on EOL equipment (monthly operational report).
- Call Center/Service Desk And NOC
 - Call Centre/Service Desk for users to report incidents.
 - NOC: Management and Monitoring solution.
- Core and redundancy
 - Failover Core.
 - Redundancy for high sites.
- High Sites:
 - Security considerations for High Sites to protect the equipment, for example cameras and physical security.
 - Back-up power at high sites (solar panels, generators).
- Expanding the current Public Wi-Fi network:
 - Prepare project plan for the roll-out.
 - Conduct site surveys for each FIZ, high site or backhaul.
 - Plan the Wi-Fi Network, in consultation with the CoT, in a reasonable manner to provide the service.
 - All cabling and installation work shall be carried out by the successful bidder.
- General
 - Maintain the entire Wi-Fi network and the phases of the network in terms of the agreed service level agreement.
 - To ensure that at termination of this Tender, the CoT will own a complete network that is functioning. All other relevant information relating to the transfer of the network is to be provided to the CoT.

- Provide CoT with the details of all licenses used in the project and provide proof of same.
- To provide proof of Wi-Fi installations and updated maps and network diagrams.
- Upon termination of this Tender, hand over all keys to the high-sites or other Municipal property.

3.3 BUSINESS REQUIREMENTS

Business/Financial model should include Business Case, Feasibility, Sustainable Model, Financial considerations, and all other documentation related to the Business Model. The Financial Considerations should include the Cost Analysis, Cost Benefits, Revenue Sharing, and all other relevant financial info.

The CoT also reserves the right to appoint an independent Financial Consultancy/Audit Firm to scrutinize the Business Model. The proposals will need to stipulate exactly how to reduce the costs to install, operate and maintain the network. The CoT wants the Wi-Fi network to be self-sustainable.

The Business Case need to indicate how ownership of the assets (for the complete and functioning Wi-Fi network) will be transferred to the CoT at the end of the contractual period – applies to all assets as acquired by the successful bidder during the duration of this contract. The infrastructure and assets installed during the contractual term must be transferred to the CoT at no cost to the CoT.

The successful bidder must appoint local subcontractors for the installation and the maintenance of the hotspot. Bidder to include training, internship, and mentorship programs.

Bidders are encouraged to propose innovative ways to deploy the public Wi-Fi network infrastructure. The CoT requires a sound and attractive business model to ensure the success of this initiative.

The CoT will give the successful bidder a 12-month period from the date of appointment to start showing revenue generation from the Network.

The CoT envisages a scenario that includes the following:

- The successful bidder will upgrade, consolidate, or expand the CoT's existing public Wi-Fi network.
- The public Wi-Fi network will be built to meet the CoT's needs.
- Underservice public areas and public schools and libraries need to be prioritized.
- The Cost of Wi-Fi is made free to Tshwane residents. Bidders will provide the minimum bandwidth as outlined in the technical specification and additional bandwidth must be made affordable.

- Stipulate how revenue sharing can reduce the costs to install, operate and maintain the network. Ideally the CoT wants the Wi-Fi network to be self-sustainable.
- No private or business networks are permitted on the Tshwane or Wi-Fi Network unless investigated and approved by CoT.

The CoT is interested to understand the business model to be followed by the bidders including:

- Anticipated cost of public Wi-Fi network establishment, operations, and sustainability.
- To what extent the bidder displays a comprehensive understanding of the costs involved in establishing, operating, and sustaining the public Wi-Fi network.
- Revenue sharing initiatives.
- Provide clear calculations and a sound basis for the assumptions put forward.

Solution Model

The assumptions are presented as follows:

- Level Responsibility of successful bidder.
- Ownership.
- Implementation of Expansion/Replacement.
- Operate/Maintain public Wi-Fi network.
- A profit share model may be considered.

Bid Responses

Bidders are required to provide detailed feedback to questions related to the business model. Below are elements of the model.

Service Provision

- How the bidder will ensure that the Open Access principle is maintained in the public Wi-Fi network.
- Present a pricing schedule.
- Is the service level agreement in line with the requirements as stipulated in this Tender.
- What is the expected impact of the bidder's offerings on the current public Wi-Fi network environment.
- Any other pertinent information around service provision.

Reach Underserved Areas

The objective of the CoT is to increase and accelerate access to the benefits of Internet based communication and to achieve digital inclusion through the provision of public Wi-Fi. Based on this objective the bidder should present:

- The bidder's strategy for increasing access to reach underserved areas within CoT.

- The bidder's ability to reach all underserved areas within CoT and how long they expect to achieve this.
- Any other pertinent information about reaching underserved areas.

Innovation

The potential impact of the CoT public Wi-Fi network is immense. However, an innovative approach is required to achieve the CoT's socio-economic objectives as well as the benefits thereof. The bidders are therefore encouraged to develop an innovative solution to promote the viability and sustainability of the Wi-Fi network.

Bidders should describe:

- How the bidder's approach will assist the CoT in meeting the Wi-Fi network project objectives.
- Any strategies to reduce the cost of services.
- How the bidder's approach will promote the viability and sustainability of the project.
- The differentiator or competitive advantage the bidder's solution presents.
- The expected benefits to ensure a win-win solution for all parties involved.
- Specific organizational approaches to innovation that enable it to be a market leader and respond to a fast-changing environment.
- Any other pertinent information around innovation.

Risk Model

Bidders are required to present a risk model indicating the following:

- Types of risks identified.
- Mitigation and avoidance.
- Impact of risk e.g. financial, operational, organizational etc.

Corporate Social Investment

Corporates, now more than ever, are being encouraged to become responsible corporate citizens by implementing effective Corporate Social Investment (CSI) programs that meaningfully impact the lives of community members. The CoT, through the public Wi-Fi network aims to increase access to telecommunications services. The bidder has an opportunity to initiate and/or expand an existing CSI initiative to support the objectives of the public Wi-Fi network project.

The bidder should provide details of:

- The CSI initiatives they have previously implemented including the nature of the initiative, when it was implemented, the amount invested and the impact on the beneficiaries; and
- The CSI initiatives to be implemented by the bidder including details of the nature of the initiative, when it will be implemented, the amount to be invested and the expected impact on the beneficiaries.

3.4 NEW ARCHITECTURE/EQUIPMENT

3.4.1 GENERAL ARCHITECTURE REQUIREMENTS

The bidder must define and include technical pamphlets of all architecture that will be used broadly defined in the following categories:

- Core: Core servers, Network management and monitoring software, service desk software, work force scheduling software, captive portal software and any additional software that may be needed.
- Backhaul (radio, aerial or underground fiber, mesh networking etc).
- Access Level i.e. Access Points and related equipment.

Additional requirements include:

- All equipment shall be field-proven high reliability and high performance.
- The Wi-Fi network must be easily scalable inclusive of additional Internet Bandwidth if needed.
- Equipment used in the public Wi-Fi network shall be compatible within the South African electrical operating environment e.g. a 220V, 50Hz AC power supply.
- Full comprehensive insurance should be carried by a successful bidder on all new equipment for the full term of this agreement.

3.4.2 WARRANTIES

The bidder warrants that:

- Materials used shall be new and free from all defects and faults and manufacture shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The successful bidder shall be responsible for any defect that may develop under the conditions provided by the contract and under proper use, arising from faulty material, design or workmanship such as corrosion of the equipment, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in circuit design and/ or otherwise and shall remedy such defects at its own cost when called upon to do so by the CoT.
- Workmanship shall be of the highest quality.
- For the duration of this Tender, the successful bidder has valid title to all new assets being installed. At the end of the Tender, the successful bidder shall transfer ownership of a functioning Wi-Fi network to the CoT and all assets installed under this tender shall be transferred to the CoT. If the successful bidder fails to provide a functioning network to the CoT, the CoT will be entitled to recover all funding paid over to the successful bidder.

- At the end of the Tender, valid guarantees will also transfer ownership from the successful bidder to the CoT.

3.4.3 NOC (NETWORK OPERATIONS CENTER) AND TECHNICAL SUPPORT CENTRE

The successful bidder must establish a NOC and ITIL compliant technical support center within three months of award of Contract to provide technical support to ensure smooth functioning of the operations. Subscribers can log calls either via the phone or via e-mail. The following contact details apply to the technical support center:

E-mail:	PublicWiFi@tshwane.gov.za
Telephone Nr:	012 358 8555

The number can for example be provided at every FIZ for ease of reference.

The NOC and ITIL compliant technical support center must be housed on CoT premises. CoT will provide a suitable area, and the successful bidder must provide a design to be approved by ICT Management.

It should be noted that the facility must monitor the entire network inclusive of old equipment and any new equipment deployed during the contractual period.

3.4.4 CORE

The core with will host all servers, Wi-Fi controllers with associated software, firewalls, and internet breakout.

3.4.4.1 IP-BASED (INTERNET PROTOCOL)

Design to be based on the IP platform and IP ranges to be discussed and approved by CoT.

3.4.4.2 SOFTWARE AND LICENSING

Bidders to provide list of software to be used as well as the licensing requirements this include:

- NMS (Network Monitoring System)
- Support/Help Desk
- Captive Portal
- Subscription Management System to register user and for procurement of additional bandwidth
- Filtering and site restriction software

- Performance metrics
- Security platforms

The successful bidder will be responsible for all software licensing. All software, including operating system and applications software, shall be authentic and legal and all software licenses should be up to date. Documentary evidence or declaration to the effect that the type of software to be utilized in the system/equipment shall be furnished by the bidder.

Note:

- All software must be licensed for the duration of the contract.
- Software versions for the equipment being supplied shall be the latest version.
- Firmware must be upgraded on a regular basis and CoT must be notified of all firmware releases. Firmware to be upgraded via Change Control processes.
- Certified and licensed copies of the application software required shall be supplied.
- Freeware software (i.e. Linux and Apache) that is supported by respective OEMs can be supplied bundled with application/solution.
- Unsupported software with no provision of bug fixing, upgrades and updates shall not be accepted.
- All the software upgrades and/ or patches required for the system supplied shall be implemented free of cost.
- All system interfaces should be industry standard open interfaces.
- If Wi-Fi controllers are deployed then info w.r.t. license limitations, redundancy, number of licenses etc. needs to be provided in the bid.

3.4.4.3 NETWORK MANAGEMENT SYSTEM AND MONITORING

The bidder should describe the network management solution and should describe the main characteristics of each element that compose the network management solution.

The Management System must:

- Monitor performance and faults.
- Support for event notifications.
- Support of SNMP protocol standard and NTP Integration.
- Display alarms based on violation of traffic thresholds of each of the interfaces.
- Interconnection links with other nodes and system performance indicators (KPI)
- Display alarms based on thresholds violation system parameters.
- The solution shall provide at least the following statistics and reporting. Number of login attempts; Number of successful sessions; Number of failed sessions; Number of unique users per day\month\year; Number of unique new users per manually defined period; user usage statistics.
- Support full backup and restoration of the system configuration, system database, reports, configuration profiles, views, maps, etc.
- Management platform should include the following functionalities:
 - Configuration management
 - Fault management
 - Performance management
 - Security management
- Must support following features:
 - Network Monitoring and Troubleshooting
 - Indoor location monitoring capability
 - Centralized Software updates

The Management Solution should encompass all network elements that are part of Wi-Fi Network including access points, switches etc. Network and Wireless Management.

The Management System must provide a solution for comprehensive lifecycle management of the wired/wireless networks. It must have full FCAPS (Fault, Configuration, Accounting, Performance, Security) facility in respect of wireless /wired elements and should be compatible with IPv4 and IPv6. The Management system must support configuration, administration, monitoring and troubleshooting of switches and network elements.

The Management System must be modular and scalable and should be dimensioned according to the network size and incorporate future growth. Bidder should describe the scalability and capacity of the system in all supported configurations.

The Management System must provide FCAPS functionality and web-based management capabilities for managing the Wired and Wireless Network Elements:

- Extensive wireless management capabilities
 - Radio frequency (RF) management
 - User access visibility
 - Reporting
 - Troubleshooting
- Network infrastructure lifecycle functions
 - Discovery
 - Inventory
 - Configuration
 - Image management
 - Integrated best practices and reporting

Functional requirements of the Management System:

- **Deploy**
 - Schedule the rollout and implementation of network changes.
 - New configuration or monitoring templates created in the design phase, software image updates, and support for user-initiated ad-hoc changes and compliance updates.
 - Set of guided and advance flows to bulk provision new devices (including the converged access switches on the network) or push an initial configuration to a device to bring it up within a few minutes, thereby drastically reducing IT operational expenses.
- **Operate**
 - Monitor the overall health of the network using predefined dashboards that provide up-to-date status. Simple one-click workflows and views to enhance troubleshooting and reduce the time to resolve network issues. Unified alarm display provides actionable information and links to automatically open service requests.
- **Report**
 - Access a wide variety of predefined reports for up-to-date network information, including detailed inventory, compliance, audit, capacity, end-of-life, security vulnerabilities, and many more. Operations monitoring and quality of experience workflows reduce instrumentation configuration and data collection complexity to provide real-time insight into network and application performance. Network inventory auditing.
- **Administration**
 - Role-based access control provides flexibility to segment the network into one or more virtual domains controlled.
- **Complete lifecycle management on Wireless**
 - Converged solution delivers wireless management capabilities, including RF management, user access visibility, reporting, and troubleshooting - along with network infrastructure lifecycle functions such as discovery, inventory, configuration and image management, and reporting.

- **Fault Management**

- Enhanced alarm management: The fault management solution should support alarm filtering, alarm suppression, change of severity, alarm delay, alarm forward to e-mail and SMS, alarm toggling, on-line help etc.
- Management system should support Alarm on threshold that allows alarms to be blocked if a variable number of alarms occur in a variable amount of time.
- The management system should support alarm correlation. Correlation rules perform alarm grouping and find dependencies between root causes and symptoms.
- The management system should support the alarm history browsing capability. Bidder to state the capability of number of alarm storage / duration for which alarms can be stored.
- Alarm display capabilities including support of components in the alarm display, support of probable cause and specific problem and additional text fields in the alarm display, as well as support of viewing the entire raw alarm should be supported.

- **Configuration Management**

- Management system shall support the following configuration management functions:
- Installation of network elements.
- Installation tests which can be performed on the network elements.
- Automatic installation of Wi-Fi AP.
- Modification and removal of network element components.
- Automated download of new network element software.
- Device inventory management feature should be supported.
- Management system should enable policy-based automation of device configuration and management. Bidder to describe available policies.
- Management system should support offline configuration of Wi-Fi network.

- **Security Management**

- User authentication should be supported through RADIUS/ TACACS server and operator should be able to define the roles and profiles of the users.
- The management system should have a Logging capability and Centralized Security Log Auditing and Log Browser Utility should also be provided.
- Password management: Support of centralized password authentication including complex password acceptance, password dictionary support, Password Storage Encryption should be provided.
- User authorization and administration: Centralized User Administration, Centralized User Authentication and Authorization, User Session Management should be supported.

- **Software Management**
 - The NMS shall provide a Software Management application via a GUI/web-based interface.
 - The Software Manager shall provide remote software download to all managed network elements. Application shall include reporting of current software status, version number, date of last update, checksum, software installation error and status reporting. Application shall include download functionality for Release, Update, Feature and Patch delivery, installation, and activation.
 - Schedule software download: It shall be possible to schedule software downloads of any purchased Network Elements configured on the NMS. Software download shall provide capability to allow downloads based on stored start and stop time for each network element, type of element, percentage of network element type and an editable list of network elements.
- **Hardware Requirements**
 - Hardware sizing shall be sufficiently sized to accommodate all NMS requirements.
 - The successful bidder should provide ample storage. The bidder shall design the system taking into consideration the interface and other requirements of the storage.
 - Bidder to include for all hardware, software and licenses that are needed to meet the requirement of this tender document.
 - If any specific module of the application requires separate hardware for proper functioning, the same shall allowed for.

3.4.4.4 CAPTIVE PORTAL

Bidder to allow for captive portal. A Wi-Fi captive portal is a webpage that displays the terms and conditions of using a Wi-Fi network to a newly connected user. After authenticating, and/or agreeing to the terms displayed on the web page, users can access the Internet using this hotspot. The following benefits are expected from the Captive Portal:

- Collecting Customer Contact Information within the POPI framework.
- Enhancing CoT Brand Awareness.
- Protecting Visitors.
- Generating Income.
- Marketing Opportunities.
- Provisioning of data and statistics needed for reporting.

The Captive Portal must have the following capabilities:

- Need to be mobile friendly.
- Display the Terms of Use (TOU).
- Display support information.
- Display branding logos.
- Allow for authentication.
- Activate or deactivate connections.
- Capture basic information such as age, gender for statistical reporting (compliance with POPI Act is required).
- Allow self-services, for example the ability to log calls, the suggestion of additional FIZ locations.
- User account system that allows users log in to rectify and erase any data.
- Restrictions for example: How long each user can browse per log-in, the size of files that can be downloaded.
- Allow for billing, payment rates, time slots for example where the user wants additional bandwidth.
- Allow reporting on for example number of connections, disconnections, split by demographics, sites visited etc.

The TOU as well as the look and feel of the Captive Portal will need to be approved by CoT.

Generally, the Terms of use must contain for example:

- Indemnity clauses.
- Discourage illegal downloading.
- Opt-out options.
- Disclosure of the type of personal data that is collected with and clear reasons.
- Opt-in to any marketing.
- Visibility/Disclosure of the data stored about individuals.
- Procedures to handle requests by individuals to update their data or exercise their right to be forgotten.

3.4.4.5 INTERNET SERVICES

Internet Breakout to be sufficiently sized and must be scalable to accommodate future growth.

3.4.5 BACKHAUL

The old Wi-Fi network relies heavily on High-Sites and radio/microwave links. These will need to be maintained. However, all new equipment needs to be linked to fiber infrastructure. Any new FIZ's will be installed either on a radial fiber link or fiber ring to connect to Tshwane Corporate sites.

It will not be allowed to cut into existing fibers of the CoT.

Any fiber installed by the contractor will need to be maintained and repaired (at no additional cost) for the duration of the contract.

The contractor will therefore need fiber installation teams and fiber repair teams.

3.4.6 ACCESS LEVEL

The Wi-Fi network must provide access for a wide variety of devices like smart phones, tablets, notebooks etc.

In most instances, new FIZs will be deployed on pole infrastructure, like street light poles, possibly high mast poles etc. There are instances where the infrastructure will be deployed in CoT owned buildings like libraries and Customer Care Centers. The bidder needs to include for the following:

- Cabling and installation of Access Points (AP), Racks and Consolidation Switches.
- Provision of ancillaries and sundries like AP brackets, clamps, conduit for cable, rack, connectors, weatherproof kit etc. which would be required for execution and completion of the work.
- Coordinate for integration of the Access Points with the public Wi-Fi network.
- Any other material and sundries that might be needed.
- Configure the Access Points and the Switches (IP Addressing and VLAN Configuration).

The successful bidder undertakes to provide free Wi-Fi services and Internet Usage of at least 1 GB per user per device per day (Internet Bandwidth Usage Capacity).

Bidder to include options to upgrade the Bandwidth per user.

General requirements include:

- Equipment must be easily mountable to speed up the installation process.
- Equipment to support PoE for connection of possible other devices.
- All equipment must be able to withstand extreme weather conditions as most of the equipment will be utilized outdoors and must have an International Protection Marking of IP67 or higher. Boxes to be locked and hermetically/dust sealed with sufficient ventilation vents. Equipment to be protected against lightning surges.
- All Wi-Fi equipment must comply with IEEE 802.11 standards which allows Wi-Fi enabled devices to connect to the Wi-Fi Network when within range of a Wi-Fi Network. Bidders to provide a list of all standards that equipment complies to and must indicate that the equipment offered will be able to provide suitable coverage and the range should extend up to 80-100m in accordance with the Wi-Fi standard.
- The service must include the ability to configure individual FIZ locations to only be active during certain time slots for example some Parks have closes after certain hours and no Wi-Fi service will then be required.

3.4.7 PROCESS FOR INSTALLATION OF NEW EQUIPMENT

3.4.7.1 ISO PROCESSES

ISO 9001 is a globally recognized standard for quality management. The CoT is committed to ISO 9001 quality management systems standards. All activities need to be planned and executed as per ISO practices as defined w.r.t. the CoT ISO Wi-Fi processes. Please note that these processes are subject to review and change from time to time. New installations will be governed by the Installation Process Flow.

3.4.7.2 PROJECT MANAGEMENT PRINCIPLES AND PROJECT PLAN

As part of the CoT public Wi-Fi network implementation, focus should be placed on the people, process, and technology. The processes enforced through the network implementation should be efficient and reflect an understanding of the organization. Sound project management principles need to be utilized.

Project governance and compliance requirements should be enforced throughout the project lifecycle. Bidders should ensure that risks are identified and managed appropriately. Bidders are to identify the process and methodology for managing risk throughout the project.

As part of the implementation of the public Wi-Fi network a yearly project plan must be provided by the successful bidder. Progress meetings may be scheduled based on the project milestones defined by each bidder. Technical representatives must attend these project meetings to be able to answer questions of a technical nature.

3.4.7.3 SITE INSTALLATION LIST

A site installation list will be handed to the contractor. The list will contain location information of where the FIZ is required inclusive of GPS coordinates, ward, and regional information.

3.4.7.4 SITE SURVEYS

Site surveys will be necessary for new installations:

- Identify feasible AP locations.
- Identify any constraints for equipment installation.
- Availability of power supply.
- Identify availability of backhaul transmission medium and cable routes.
- Public participation/consultancy/liaison for example Ward Councilors.

The site survey teams need to survey the sites and then provide the site survey documentation and quotes for final approval. Once approved the contractor can assign the installation teams.

3.4.7.5 WAYLEAVES/ENGINEER/LANDLORD PERMISSIONS

It is the responsibility of the successful bidder to obtain all the Wayleaves (CoT and third parties like Telkom, Transnet, SANRAL etcetera) and landlord permissions necessary to implement the Wi-Fi network. Bidders should also note the Cities By-Laws with regards to Wayleaves as published in the Government Gazette No 38, Local Authority Notice 217, work in the Public Road Reserve By-Laws.

In terms of the Wayleave-By-Law, the successful bidder will be required to appoint an Engineer to supervise all work undertaken in the Public Road Reserve. All costs associated with the Way-Leave application will be for the successful bidder.

Bidders are responsible for securing any authorization required to use existing CoT assets. Any actions by the successful bidder that will impact the CoT, its operations, and its constituents must be pre-approved by the CoT. No installation requiring the use of CoT infrastructure may commence without proper authorization. The successful bidder should provide official documentary proof for the authorized use of CoT infrastructure. Only written authorization will be acceptable - no verbal authorization will be accepted.

Bidders will be responsible for ensuring that their Wi-Fi networks do not cause interference with any of the CoT's infrastructure, services, and applications.

It is the responsibility of the successful bidder to obtain permission to utilize High-Sites. Applications to utilize High-Sites must be via the appointed CoT's Managing Agent. All costs associated with this application and rental costs will be for the successful bidder.

It is the responsibility of the successful bidder to obtain permission to utilize Tshwane Network Infrastructure. Also note that CoT will only allow one uplink per streetlight pole and where additional poles is needed, the bidder need to include for this.

3.4.7.6 ELECTRICAL

In cases where an electrical outlet/connection is required, it is the responsibility of the successful bidder to install the outlet and to certify these installations i.e. a CoC (Certificate of Compliance) must be issued by their appointed electrician.

Earth Leakage Circuit Breakers, Circuit Breakers, Isolators and Surge Arrestors shall be sufficiently sized to protect the equipment.

CoT will only maintain electrical connections that were applied and installed by CoT. The successful bidder will be responsible for all maintenance and related costs on all electrical infrastructure that are utilized for the Wi-Fi solution beyond this connection point. In other words, if the isolator in the Wi-Fi box needs to be replaced, then the successful bidder will need to replace it as it was not installed by Council.

Solar Power will be required where an electrical connection is difficult. If deemed necessary CoT will also require backup power at the remainder of the high sites.

3.4.7.7 EPA

It is the responsibility of the successful bidder to obtain EPA permissions when erecting masts. All costs associated with this will be for the successful bidder.

3.4.7.8 RADIO FREQUENCIES

Bidders can use either licensed or unlicensed frequency bands (2.4 and 5GHz). The successful bidder will be responsible for costs associated with licensed bands.

3.4.7.9 JOB CARDS

In accordance with the process above, a CoT Job Card needs to be concluded as soon as a site is concluded and has passed testing.

3.4.7.10 NMS/NETWORK DIAGRAMS/FIBER ROUTES TO BE UPDATED

Information needs to be updated on the NMS, Network diagrams, Fiber routes and any other relevant document. A screenshot of the NMS will be required as evidence along with the updated network diagram and the as-built fiber route.

3.4.7.11 HIGH VALUE (HV) TEMPLATE

The contractor must capture all new equipment on the HV Template on a continual basis. The HV Template is an Excel spreadsheet that is provided by CoT Group Finance to capture asset details such as asset categories, location, condition and value. This information is submitted to Group Finance to capture asset information on the asset register.

3.4.7.12 kmz Files

A kmz file is a Zip-compressed .kml file that stores map locations viewable in various geographic information systems (GIS) applications, most notably Google Earth. It contains one or more placemarks that may include a custom name and the latitudinal and longitudinal coordinates of the location. Every new installation will be recorded on Google Earth and/or the GIS system and the successful bidder will need to supply the kmz file. FIZ's pins must be placed accurately, and it is not acceptable for example if the pin is in the street and or entrance.

3.4.7.13 SAFETY HAZARD

The successful bidder shall ensure that any installation carried out by them under this project including at hotspot location shall not become a safety hazard and is not in contravention of any statute, rule or regulation and public policy.

3.4.7.14 QUALITY OF SERVICE

Once implemented, the Wi-Fi network will be tested for quality of service. For each of the services, the following must be tested and the successful bidder needs to provide all test equipment needed for the testing:

- Availability;
- Jitter;
- Latency; and
- Packet loss ratios.

3.4.7.15 TESTING

The equipment and accessories will be tested after installation before conclusion of the job card and if any equipment or part thereof is found defective, the same shall be replaced free of all cost to the CoT.

If any equipment or any part thereof, before it is taken over is found defective or fails to fulfill the requirements of the contract, the CoT shall give the successful bidder notice setting forth details of such defects or failure and the successful bidder shall make the defective equipment good, or alter the same to make it comply with the requirements of the contract forthwith and in any case within a period not exceeding three months of the initial report. These replacements shall be made by the successful bidder free of all charges on site. Should the successful bidder fail to do so within this time, the CoT reserves the discretion to reject and replace at the cost of the successful bidder the whole or any portion of equipment, which is defective or fails to fulfill the

requirements of the Tender. The cost of any such replacement made by the CoT shall be deducted from the amount payable to the successful bidder.

3.4.7.16 APPOINTMENT OF INDEPENDENT TESTERS

CoT reserves the right to appoint independent testers to verify hotspot/FIZ performances. Should the test results indicate that the solution does not comply with the specifications and requirements, then the successful bidder must rectify at own cost to comply with said specifications and requirements.

3.4.7.17 MONTHLY REPORTING

The successful bidder shall provide monthly installation reports and also any additional reporting as required for the monthly Business Plan Report.

3.4.7.18 INSTALLATION INVOICING

Installations need to be invoiced separately from maintenance. Installation invoices must be accompanied with the following:

- Installation Job Cards (the number of job cards must match the number of invoiced sites)
- Photos
- NMS screenshot of new installations
- Updated network diagram and as-built fiber routes
- HV template
- kmz location information

3.5 OPERATIONS, MANAGEMENT AND MAINTENANCE

The bidder must include for the maintenance of all components, equipment and materials used and the maintenance activities shall truly reflect the efforts required to maintain equipment in good working order as prescribed by the supplier. The bidder needs to include for:

- Backup of AP and core network equipment configurations.
- Field operations team for providing services for all network nodes.
- The units and systems must be serviced regularly.
- Preventive maintenance to be performed on each site.
- Handling of the spare parts needed for carrying out corrective, preventive or planned maintenance activities.
- Ensure end-to-end delivery of Wi-Fi Solution.
- Perform all activities related to Optimization required for Wi-Fi Solution as per KPIs and SLAs defined.
- UPS/battery maintenance.

Management of Network shall include inter alia all activities and processes which are equipment specific and overall operations, like performance management, security management, configuration management, network and systems administration, data-base administration and fault management.

The successful bidder shall put into operation (but not limited to):

- set of maintenance procedures
- maintenance schedules like log registers, test schedules, performance and fault recording.
- periodic test schedules.
- traffic Report generation and analysis and remedial measures to be taken in each occasion.
- extraction of performance statistics from the various network elements.
- parameters for fault, performance and planning of network expansion.

Any other activity or equipment, which is not explicitly covered in this document but is essential, as part of the operations and management of Wi-Fi offload solution, Wi-Fi central location and hotspot location shall also be performed by the successful bidder.

Bidders to provide information on model to maintain/support the current Wi-Fi network consisting of FIZ sites, high sites and other elements (refer Annexure 1). During the handing over period, assets will be handed over to the successful bidder, and the previous service provider's involvement will decrease. The successful bidder will therefore liaise on a regular basis with the previous service provider. Maintenance activities included monthly maintenance of equipment inclusive of asset verification. All the processes are governed by ISO processes.

The successful bidder will need to:

- Establish a NOC
- Migrate/Import all information/statistics pertinent to the network
- Review existing hot spots, study usage and traffic statistics and migrate or discontinue the FIZ if approved.

3.5.1 MAINTENANCE PLAN

The appointed contractor will need to develop a yearly maintenance plan. The maintenance plan will then be submitted to CoT for review and approval. If amendments are required, then the contractor will need to amend the maintenance plan and submit it to CoT for final approval.

Therefore, for the first month after the inception of the contract, the successful contractor must focus on the maintenance plan and the approval thereof. No maintenance activities will take place without the approved yearly maintenance plan. The same applies to every yearly cycle of the approved contract.

The maintenance plan must contain the following sections:

1. Background
2. NOC
3. Software
 - 3.1 NMS
 - 3.2 Work Force Scheduler
 - 3.3 Service Desk
4. Resources
5. Maintenance Priorities
6. Reporting
 - 6.1 Maintenance Job Card
 - 6.2 Damage Report + Quotes
 - 6.3 Asset Confirmation
 - 6.4 FIZ + High sites
 - 6.5 SLA feedback
7. Gantt Chart

3.5.2 MAINTENANCE CATEGORIES AND ISO PROCESSES

Maintenance can be divided into the following categories:

- Maintain equipment.
- Replace equipment.
- Transfer/Dispose equipment.

ISO 9001 processes will apply to all maintenance processes.

Maintain equipment: Once the maintenance plan is approved, the monthly maintenance activities can start. The CoT maintenance job card must be utilized and incorporated into the contractor's work force scheduling program. The job card must be filled in electronically and not by hand. The job card broadly contains the following information that needs to be provided by the field technician: Location information; Job Information, Asset Information, Checklist, Date and GPS location stamped photos of assets (photos to be clear with easily readable barcodes/serial numbers), Documentation Checklist and Sign-off.

Again, note the requirement that the form must be completed electronically, and field technicians will need to be issued with electronic equipment (like tablets) that are able to take photos and for completion of the job card. It is the responsibility of the contractor to ensure that field technicians have all the available equipment and tools to properly execute their function.

Once Job Cards are returned, the information must be checked against the asset register. Where information on the job card differs from the asset register, the contractor must provide a report to Asset Management and ensure the asset details are corrected.

Replace Equipment: Equipment replacements can take place due to a variety of reasons such as insurance claims, force majeure, vandalism, theft, EOL (end-of-life), faulty equipment etc. The contractor must therefore keep a SAPS and incident register. The contractor must report stolen and vandalized assets with SAPS, provide an incident report and summarize the event in the SAPS and incident register. If equipment is insured by CoT, then the contractor must provide a quote for the replacement equipment and log the incident with the CoT insurance. In cases where the CoT insurance was not approved, the asset must be impaired. In cases where CoT insurance is approved, an order number will be provided by CoT Group Financial Services. Asset procedures need to be followed:

- New replacement equipment needs to follow installation processes and therefore will need installation Job Cards, photos and updated HV Template.
- Stolen equipment details need to be removed from the asset register.
- Information needs to be updated on the NMS, Network diagrams and any other relevant document.

[illegible]

3.5.3 MONTHLY MAINTENANCE REPORTING

The contractor must provide a monthly maintenance report with the following sections:

1. Purpose
2. Resources
3. NOC feedback
 - 3.1 Availability
 - 3.2 Capacity
 - 3.3 FIZ Response Times
 - 3.4 Firmware Versions
4. Work Force Scheduler
 - 4.1 Maintenance Activities
 - 4.2 ServiceDesk
 - 4.3 Assets
 - 4.4 End of Life Equipment
5. Internet/Captive Portal
 - 5.1 Internet
 - 5.2 Captive Portal
6. Physical Security
7. Notices/Rating

3.5.4 BACKUP CONFIGURATION

Back-ups of equipment configurations must be done monthly.

3.5.5 ASSET VERIFICATION

Asset verification is built into the maintenance processes and entails checking the asset information against the asset register. Maintenance Job Cards need to be concluded monthly. The following information is captured on the maintenance job cards:

- All location information related to the assets inclusive of Site ID, Site Name, Site Type, Site Area, Region, Ward, and GPS Coordinates.
- Asset types, barcodes, and serial numbers.
- Photos of the equipment.

Once the contract is concluded, all assets will be handed over to the CoT. Although newly installed assets will remain the property of the successful bidder for the duration of this contract, CoT will provide asset tags to avoid cumbersome processes after the conclusion of the contract.

3.5.6 GIS (GEOGRAPHIC INFORMATION SYSTEM)

During the term of the project, the successful bidder will ensure that all Fiber routes, FIZ and High Site locations are recorded correctly on the GIS system of CoT. Geographical data must be very accurate.

CoT needs this data in certain formats and spatial data must be captured by the successful bidder in a file geodatabase format:

- ESRI file geodatabase (.gdb) format - ESRI (ArcGIS) and the preferred format.
- ESRI shape file (.shp) format - this is a universal spatial data exchange format for users that are utilising other GIS software packages.

On request GIS information must also be provided in Google Earth (.kmz) or AutoCAD (.dwg) format.

3.5.7 MAINTENANCE INVOICING

Maintenance (as required as and when) needs to be invoiced separately from installations. Maintenance invoices must be accompanied with the following:

- Maintenance Job Cards (the number of job cards must match the number of invoiced sites)
- Photos
- Updates Asset Register with reports of incorrect asset detail

3.6 SECURITY

CoT will determine the need for security on an as and when required basis.

The safeguarding of assets and personnel is one of the key requirements to ensure business continuity of an organization and is also underlined by legislation, hence the need for the supply, installation and maintenance of alarms and CCTV cameras, the live monitoring of sites, establishment of an operational control room and the dispatch of armed response in order to safeguard the assets.

As important are also network security by implementing firewalls, access control policies, network architecture, and procedures, network security enables CoT to protect and secure the Public Wi-Fi network from unauthorized access, attacks, and breaches.

3.6.1 PHYSICAL SECURITY ASPECTS AND SYSTEMS

This is the primary security level to be established and will ensure that the environment where CoT systems, data, or personnel operate is secure.

This entails:

- Establishment of an operational control room
- Deployment of security systems like CCTV etc.
- 24/7/365 live monitoring of CCTV cameras and triggered alarms by relevant security equipment.
- 24/7/365 armed response when and where relevant security equipment has been triggered.
- Security, patrol and access control services

3.6.1.1 REQUIREMENTS PERTAINING TO ALL SECURITY OFFICERS

The successful service provider(s) undertake to provide only Security Officers appointed in terms of the Security Officers Act, 1987 (Act No 92 of 1987) and the Private Security Industry Regulation Act, 2001 (Act No 56 of 2001) in order to ensure that Security Officers:

- Are permanent residents of South Africa.
- Do not have committed any of the scheduled criminal offenses listed in the Private Security Industry Regulation Act.
- Have completed training at an accredited training centre as a Grade C Security Officer.

3.6.1.2 ARMED RESPONSE

- All armed response officers must be fluent in two of the three official languages of Gauteng.
- Armed response officers must be dressed in full company security uniform when on duty and must be in possession of a baton, torch, firearm, and a two-way communication device.
- All armed response officers must wear an ID card in a visible manner that must contain the officer's name, surname, PSIRA number, and a photo of the officer.
- All armed response officers must have police clearance and may not have a criminal record.
- Armed response officers must be in possession of the required valid Firearm Competency Certificate.
- A six-monthly report regarding the police clearance of all armed response officers must be submitted.
- Upon receipt of an alarm activation, a response vehicle with armed security guards must be dispatched within 10 minutes.

3.6.1.3 GRADE C SECURITY OFFICERS

Grade C Security Officers to be utilized to perform security, patrol and access control services at the various facilities of the CoT must adhere to the following minimum requirements:

- Be in physically fit condition.
- Daily sign on and off duty.
- When on duty, be dressed in full company uniform of the applicable service provider, including footwear and protective rain clothes, when applicable.
- When on duty, wear an identity disc, tag or other identity device in such a manner that it can be clearly seen and the identity disc, tag or other identity device must display the Security Officer's surname, initials, PSIRA registration number and a photo of the Security Officer.

When on duty Security officers must be in possession of a:

- Pocketbook and pen;
- Baton;
- Handcuffs;
- Whistle;
- Flashlight; and
- Hand-held two-way radio set (alternatively fully operational cellular telephones) which shall at all times be in working order and condition (where applicable).

Duties of Grade C Security Officers:

- Work day shifts and/or overtime as and when required to CONDUCT VISUAL PATROLS of the facilities, property and installations for the prevention of crime and protection thereof as well as personnel and visitors.
- Work night shifts and/or overtime as and when required to CONDUCT VISUAL PATROLS of the facilities, property and installations for the prevention of crime and protection thereof as well as personnel and visitors.
- Perform all duties with due regard to the provisions of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and adhere to all safety rules and regulations.
- Not cause any noise or nuisance.
- The conduct and behavior of Security Officers must always be of such nature that it is conducive to the image of the CoT.
- In the event of CoT being dissatisfied with any of the conduct, behavior and/or services rendered by Security Officers provided by the successful service provider, CoT shall notify the applicable service provider in writing thereof. The service provider shall forthwith provide an equally qualified and trained substitute (minimum Grade C Security Officer). CoT shall furnish reasons for its dissatisfaction to the service provider and the parties shall keep these reasons confidential between themselves.

3.6.1.4 DUTIES AND CONDITIONS OF SERVICE PROVIDER

- The services rendered by the Security Officers of the successful service provider shall be rendered under competent supervision provided by the applicable service provider and the service provider shall be required to carry out proper supervision of its personnel by means of daily and nightly visits during their hours of duty. The supervisor of the successful service provider shall furthermore record details of such visits. At the end of each month of the contract, the successful service provider(s) shall provide the CoT of a schedule, in a prescribed format, of all supervisory visits performed for a particular month.
- The successful service provider(s) shall be responsible for taking command of and controlling the deployment of the service provider's Grade C Security Officers on a daily basis at the various facilities of CoT.
- PPE: It is the responsibility of the successful bidder to provide Personal Protective Equipment (PPE) inclusive but not limited to Hi-Visibility Clothing, Two-Way radios, ID Cards and Badges, First Aid Kits etcetera.

3.6.1.5 REPORTING OF INCIDENTS

- All incidents or accidents involving the death or injury to any person, including any criminal offence committed on the premises of the CoT shall forthwith be reported to the local police station and the CoT. A detailed written report of such incidents shall be presented to CoT within twelve (12) hours after the occurrence of the said incident or accident.
- Salient details of all incidents occurring on the CoT premises shall be recorded immediately after the occurrence thereof in the Occurrence Book. Books for this purpose shall remain available for inspection at any time in a pre-arranged office or enclosure on the premises. All and any vehicles and visitors entering the premises of CoT must be recorded in the Occurrence Book.
- Notwithstanding anything to the contrary, CoT may also, if deemed necessary, request the applicable service provider to submit a detailed written report in respect of any incident or accident after it has occurred on the premises of CoT.
- The successful service provider(s) must ensure that, should CoT deem it necessary, its Security Officers attend and testify in disciplinary hearings against employees of the CoT, regarding incidents recorded in the Occurrence Book: Provided that CoT has notified the applicable service provider within a reasonable time, before the start of the disciplinary hearing that the presence of the service provider's Security Officer is as such required.

3.6.1.6 EQUIPMENT

The successful service provider shall ensure that the necessary equipment, as agreed upon between the parties from time-to-time, including but not limited to batons, handcuffs, pocket books, occurrence books, whistles, hand-held two-way radio sets (alternatively fully operational cellular telephones) and flashlights shall at all times be in possession of the Security Officer and be in working order and condition, to enable the Security Officers to perform their duties to the reasonable satisfaction of CoT.

3.6.1.7 UNIFORMS AND IDENTIFICATION

The successful service provider(s) shall at its own cost provide the necessary identification for all personnel provided in terms of this tender. Security Officers must, immediately upon commencement of the contract, wear approved identifiable uniforms. Identification for purposes of this service shall be construed as:

- When on duty, be dressed in full company uniform of the applicable service provider, including footwear.
- When on duty, wear an identity disc, tag or other identity device in such a manner that it can be clearly seen and the identity disc, tag or other identity device must display the Security Officer's surname, initials, PSIRA registration number and a photo of the Security Officer.
- Security Officers, when on duty, must wear an approved uniform including footwear. The service provider undertakes to issue protective clothing to personnel in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the Regulations promulgated in terms of the Act.

3.6.1.8 STATUTORY PROVISIONS

The successful service provider must be conversant with, conforms to and complies with all statutory provisions, regulations and by-laws relating to its business and all the conditions of service and remuneration of applicable to Grade C Security Officers as stipulated in the Main Collective Agreement concluded in the National Bargaining Council for the Private Security Sector (NBCPSS).

3.6.1.9 REGULATIONS AND PROCEDURES

The Security Officers provided in terms of this service shall observe CoT policies and procedures while providing the required services, where applicable.

3.6.1.10 REMUNERATION

The service provider remains solely responsible for payment of all costs of the Security Officers as per the conditions of the Main Collective Agreement concluded in the National Bargaining Council for the Private Security Sector (NBCPSS), as extended to non-parties, including but not limited to salaries, bonuses, pension fund contributions, benevolent fund contributions, medical fund contributions and insurance premiums.

3.6.1.11 EMPLOYMENT

The Security Officers shall continue to be employees of the applicable service provider and no contractual relationship shall come into existence between such Security Officers and CoT.

3.6.1.12 REGULATIONS AND PROCEDURES

The Security Officers provided in terms of this service shall observe CoT policies and procedures while providing the required services, where applicable.

3.6.1.13 MONITORING

The successful service provider(s) acknowledge and agree that CoT shall at all times during the term of the contract be entitled to monitor the applicable service provider's services, and adherence to the contract conditions.

3.6.1.14 LEGAL PROCEEDINGS, ETC.

Security Officers must attend and, if necessary, testify in court proceedings, as well as in disciplinary and arbitration proceedings, should CoT deem it necessary: Provided that CoT has notified the applicable service provider, within a reasonable time, before the start of the proceedings that the presence of the applicable service provider's Security Officers are as such required by CoT.

3.6.1.15 INDEMNIFICATION

The successful service provider hereby indemnify and hold CoT harmless against:

(a) Liability in respect of any damage to property, whether movable or immovable, belonging to itself or third parties;

(b) Liability in respect of lost property belonging to itself or third parties; and

(c) Liability in respect of the death, unlawful arrest, injury, illness or disease as regards any person arising out of the rendering of the required service.

(d) Should any of the Security Officers provided in terms of this service abscond, resign or be dismissed from the applicable service provider's employ and retain possession of the uniform clothing involved (or any part thereof), the applicable service provider hereby indemnifies CoT against any claim for loss or damages made against or suffered by CoT as a result of any actions of such Security Officers or ex-Security Officer intentionally or negligently making any uniform clothing available to any other person.

3.6.1.16 CCTV

Closed-circuit television refers (CCTV) to the use of video cameras to transmit images to a specific, limited group of monitors, primarily for security purposes.

CoT wants to protect ICT valued infrastructure at frequently vandalized areas. There are seven basic components that need to be considered for a CCTV system:

- Cameras
- Monitoring Solution
- Video Recorders
- Supporting Accessories
- Storage Devices
- Power Supply
- Video Management Software

Equipment to comply to IEEE 802.3af, 802.3at and 802.3bt depending on the requirement.

3.6.1.16.1 CAMERAS

Cameras must comprise at least the following:

- high resolution at least 5 Megapixels (2592 x 1944)
- IP based
- automatic connection between NVR and IPC (IP Camera)
- must support mixed-use of wired and wireless connection
- good low-light performance and night vision of at least 50m.
- intuitive interface, convenient installation with easy remote control
- wide dynamic range
- robust build quality
- weatherproof/waterproof with IP66 rating.
- reliable
- durable
- advanced features such as motion detection or facial recognition.
- able to get e-mail alerts if motion detected.
- 24/7 video surveillance will be needed and therefore the cameras must be able to capture clear images by night.
- The ability to store video footage.
- Recording options such as continuous recording, scheduled recording, or motion-based recording

Cameras need to support the following connection types:

- PoE technology simplifies installation by powering IP cameras and transmitting data over a single cable, reducing clutter and enhancing system integration.

- Wi-Fi provides a wireless solution for IP cameras, allowing flexible installation.
- Fiber optic technology represents a modern approach for high-speed, long-distance data transmission. It's suitable for both analog and IP cameras, facilitating high-definition video in advanced security systems.
- SIM card (4G/5G) security cameras that will be ideal for remote locations especially if these are also solar based with battery backup.

3.6.1.16.2 MONITORING SOLUTION

Monitoring will be done by the Metro Police Asset Division. The video streams must therefore be directed to their monitoring facilities.

3.6.1.16.3 VIDEO RECORDERS AND STORAGE DEVICES

- NVR (Network Video Recorder) solutions need to be considered, and the bidder must propose a solution that will have sufficient capacity to grow.
- Due to the vast geographic area that CoT is located in, NVR's can be accommodated in different buildings.
- It must be possible to stream all feeds to the Metro Police Asset Division.
- The successful service provider must ensure that the data recorded by the CCTV cameras is stored securely for a minimum period of 30 days in such a way that images cannot be inadvertently corrupted or copied and that there is a prescribed process in place to destroy data in a responsible manner.
- Data recorded by CCTV cameras must only be accessible by authorised personnel of either the successful service provider(s) or CoT.
- The footage recorded by CCTV cameras may only be used to deter crime and to maximize the safeguarding of CoT's property, assets, personnel and visitors.
- If and when required by an authorized representative of CoT, CCTV footage must be provided to CoT in a format that is compatible with the electronic system(s) of CoT.
- Any suspicious activities that are observed on CCTV footage, must immediately be brought to the attention of the authorized representative(s) of CoT.
- It will be the responsibility of the successful service provider(s) to install clear signage to alert people as to the use of CCTV cameras on the sites.

3.6.1.16.4 VIDEO MANAGEMENT SOFTWARE

Video Management Software (VMS) is a crucial component of modern video surveillance systems. It allows users to efficiently manage, view, store, and analyze video captured by surveillance cameras.

The following key features are required:

- user-friendly interface
- levels of user access and roles
- operators need to be able to control cameras, view live and recorded footage, and set up alerts and notifications for specific events
- remote access allowing CoT to monitor sites from anywhere using computers or mobile devices and providing convenient and secure remote video monitoring and customized reporting
- video analytics such as intrusion detection
- seamless integration with other security systems
- Scalable: Video management software that supports on-premises, cloud-based, and hybrid deployments offer an efficient solution for large-scale installations.
- Storage management: efficient storage management is crucial and the VMS need to support local and network storage.
- Performance: The VMS need to handle multiple simultaneous live, playback, and video analytics streams.
- Updates: The software must be updated for the duration of the tender.

3.6.1.16.5 POWER CABLES, CABLING AND SUPPORTING ACCESSORIES

The equipment needs to be installed with their power cables, cabling and all supporting and mounting fixtures. Pricing for this must be included with the main components and no additional charges will be considered.

3.6.1.17 OTHER SECURITY DETECTION SYSTEMS

CoT are also considering the following for example for remote high sites:

- **Fence Detection Systems:** Early detection for intruders and prevents environmental nuisance alarms.
- **Microwave Sensors:** Flexible, reliable microwave links and transceivers for the protection of open areas, gates or entryways and rooftop or wall applications.
- **Buried Cable Detection Systems:** Terrain-following volumetric sensors that locate intruders to within 3 meters for covert protection applications.
- **Infrared and Dual Tech Sensors:** High-performance stand-alone active / passive infrared and motion sensors designed for outdoor intrusion detection.

- **Artificial Intelligence (AI) Video Analytics:** AI video analytics can help identify potential security threats, such as a person loitering in a restricted area, or an object left behind in a public space. In addition, AI video analytics can be used to track the movement of people and things, which can help investigate crimes.
- **Biometric Authentication:** It's the process of verifying a person's identity by analyzing their physical or behavioral characteristics. Examples of biometric identifiers include fingerprints, iris scans, and facial recognition.

3.6.2 NETWORK SECURITY

Bidders should consider security solutions such as:

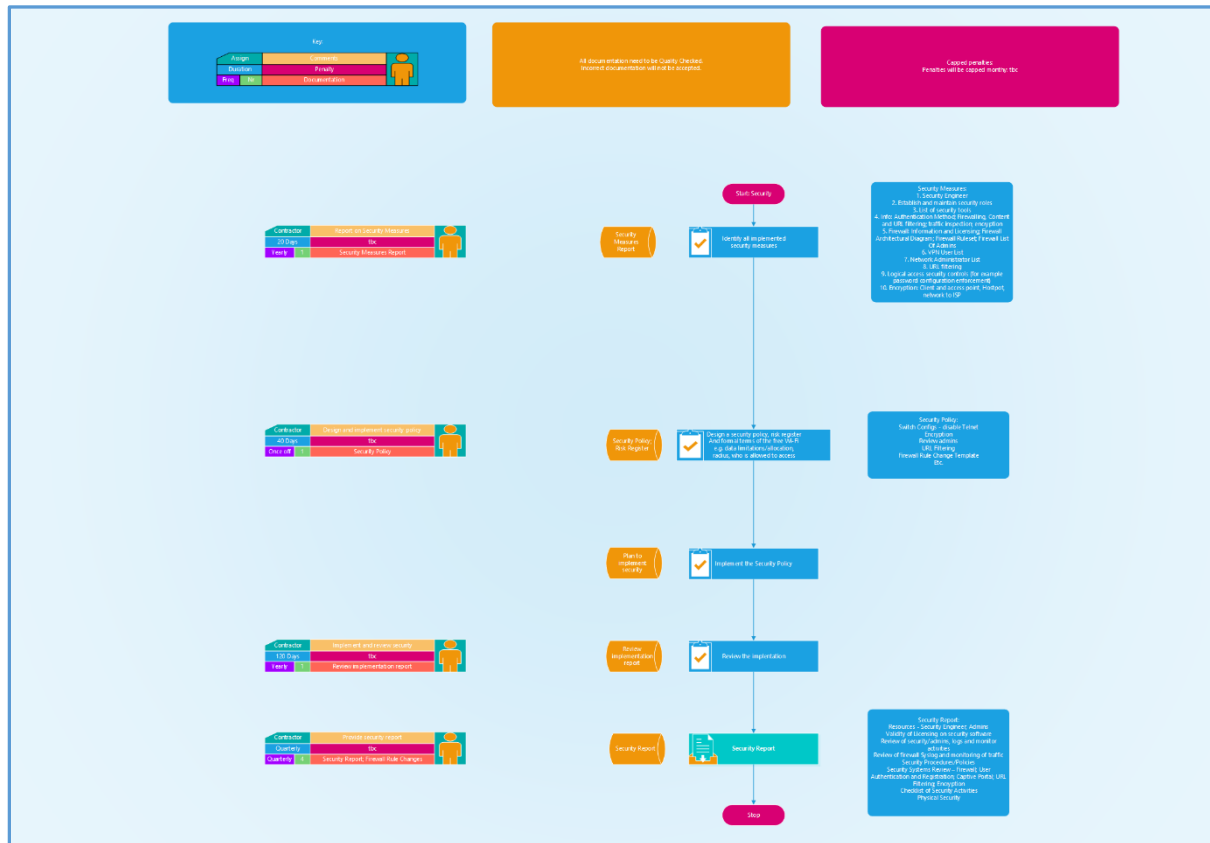
- Authentication Method
- Firewalling (NGFW) and Unified Threat Management Gateway
- Content, application and URL filtering and blocking
- Traffic inspection
- WPA/WPA2 and enterprise variants encryption
- End-to-end encryption like HTTPS and SSH
- Any additional security measures.

Security solutions must be upgraded continuously and must always be on the latest release.

Bidders shall ensure that the CoT private network is segmented from the public Wi-Fi network that it provides confidentiality, integrity, and availability.

3.6.2.1 ISO PROCESS

The successful bidder must compile and implement a security policy. The implementation must be reviewed, and quarterly security reports must be provided.



3.6.2.2 ENCRYPTED HOSPOT TRAFFIC

Security is a serious concern in connection with Hotspots and bidders need to take the following into account:

- The wireless connection between the client and the access point. This needs to be encrypted, so that the connection cannot be eavesdropped or attacked by a man-in-the-middle-attack.
- The Hotspot itself as the WLAN encryption ends at the interface.
- The traversing of the traffic from the hotspot over the network to the ISP.

3.6.2.3 FIREWALLS/URL FILTERING

The successful bidder will need to firewall internet traffic. As this is a public network utilized by all age groups, URL filtering is a definite requirement.

3.6.2.4 SECURITY POLICY/RISK REGISTER

Risk and security management on a network of this scale is of paramount importance. Bidders will be required to demonstrate their approach to security and risk management through policies, procedures, design, and operation of their Wi-Fi networks. Bidders shall submit a detailed risk management plan detailing project risks and mitigation strategies.

The successful bidder will need to design and implement a security policy, risk register and formal terms of the free Wi-Fi e.g. data limitations/allocation, authentication. The policy will need to reference the following topics:

- Switch Configs for example disable Telnet
- Encryption
- Review admins
- URL Filtering
- Firewall Rule Change Template
- Etc.

3.6.2.5 SECURITY REPORT

The successful bidder will need to supply a Security Report on a quarterly basis:

- Resources - Security Engineer; Admins.
- Validity of Licensing on security software.
- Review of security/admins, logs and monitor activities.
- Review of firewall Syslog and monitoring of traffic.
- Security Procedures/Policies.
- Security Systems Review - Firewall; User Authentication and Registration.
- Captive Portal; URL Filtering; Encryption.
- Checklist of Security Activities.
- Physical Security.

3.7 GENERAL CONDITIONS W.R.T COMPLETE WI-FI SOLUTION

3.7.1 SIGNAGE/BANNERS/LOGOS/BRANDING

The Wi-Fi Brand Name is Tshwi-Fi will remain the property of the CoT.

The successful bidder must liaise with the CoT Marketing department for any brand promotion or advertising initiatives. Any public promotional material, branding or advertising involving the use of the CoT's official brand and logos must be approved by CoT Marketing prior to publication.

The successful bidder can apply to the CoT for the erection of responsible signage within the vicinity of each agreed site to promote the FIZ and display details of each FIZ sponsor. However, it is the responsibility of the bidder to provide and install said signage and no additional cost to the CoT. The following signage is mandatory:

- Identification of a Free Wi-Fi hotspot
- Site Id
- IP Addresses

3.7.2 MEETINGS AND PRESENTATIONS

The successful bidder will be required to schedule and minute a two weekly Technical Meeting with the CoT. The following must be standing discussion points:

- SLA discussions
- Reporting on complaints, i.e. complaints received and scheduling information etc.
- Report on status of projects

The successful bidder may also be required to attend ad hoc meetings as and when required (for example a project meeting with the client CoT). From time-to-time, the bidder will be required to either present or prepare a presentation for Top Management.

3.7.3 DOCUMENTATION AND REPORTING

To preserve the integrity of the CoT's processes and infrastructure, the Wi-Fi network must be properly documented and reported. Audit requirements are stringent and require evidence of all activities, for example for installations evidence is required in the form of the job card, photos, NMS screenshot of new sites, etcetera.

To keep track of all the necessary documentation a document register will be provided, and the successful bidder will be required to keep this up to date and periodically provide reports, statistics, minutes, and all documentation that is required.

Document Register (note although this list is as exhaustive as possible, it should not be seen as a complete list and some documentation can be merged into other reports):

Document Register	Frequency
Tender, Project, and General Documentation/Reports	
Strategy	Yearly
Business And Financial Model: Business Case, Feasibility, Sustainable Model, Financial Model (Cost Analysis, Cost Benefits, Revenue Sharing)	Once off
Business Plan Report (Reports on Maintenance and Installation Progress)	Monthly
Communication Plan	Quarterly
Policies/Procedures (ISO Processes)	Once off and if amended
Risk Register	Quarterly
Project Charter/Scope/Schedule/Organigram	Once off
Project Details i.e. Summary of Project	Yearly
SAPS And Incident Register	Update as/when
Public Wi-Fi Incident Report	Update as/when
Meeting Minutes	
Kick Off Meeting	One Off
Technical Stream Minutes	Monthly
Ad hoc Meetings	As required
Installation Documentation	
Project Plan include scope, schedule, budget, roles, responsibilities, resources	Yearly
Site Survey/Design	Quarterly
Job Card/Acceptance Form	Quarterly

kmz Files	Quarterly
Photos	Quarterly
FIZ Site Installation List	Quarterly
HV Template	Quarterly
Invoice based on Tender Pricing	Quarterly
Installation Report from NMS	Quarterly
List of All FIZ's	Once off but update
Approved Wayleaves	Quarterly
Electrical Certificate Of Compliance	Quarterly
Maintenance	
Maintenance Plan	Yearly
Operational/Maintenance Report	Monthly
Quotes for repairs (based on tender prices)	Monthly
Job Cards for Maintenance	Monthly
Attendance Registers for Security Guards	Monthly
Invoices based on Tender Pricing	Monthly
Firmware upgrades	Quarterly
Software versions on latest releases	Quarterly
Asset Transfer Forms/Asset Disposal Forms	As required
Network Diagrams	
IP Map / List of ranges	Installations/Quarterly
Network Diagrams: Core	Installations/Quarterly
Network Diagrams: General	Installations/Quarterly
Network Diagrams: FIZ connecting to HS	Installations/Quarterly
Network Diagrams: High Site Connections	Installations/Quarterly
Network Diagrams: Fiber Route Plans	Installations/Quarterly
Security General	

Security Information Template - Security Engineer Credentials - List of administrators - Security Checklist - Security Procedures/Processes - Security Systems - Physical Security	Once Off
Formal terms of the free Wi-Fi e.g. data limitations/allocation, radius, who is allowed to access	Once Off
Security Policies, Standards and Procedures	Once Off
Network Security Report	Quarterly
Security Supporting Docs: - System Security Configuration Settings (network discovery protocol on internet connection interface, insecure protocol (Telnet, FTP), Passwords encryption and Auto Configuration) - Security Config File for example Controller and firewalls	Quarterly
Firewall Changes	Quarterly
Attendance Registers for Security Guards	Monthly
Internet/Captive Portal	
Internet Usage, User and Browsing Statistics	Monthly
Help Desk/NOC	
Evidence of the Incident Notification System	Once off
List of Incidents (Including Date, Description, Network Element, Start Date and Time, Resolution, Rating, Escalation Etc)	Monthly
Evidence of Monitoring of the Automated Alerts to the Incidents Logged	Monthly
List of Users and Groups to Whom Alerts are Distributed	Quarterly
Automatic Escalation Configuration for the Notification	Once off

Any other or ad hoc documentation/reporting as required from time-to-time for example:

- Technical support center design
- EPA permissions
- Health and Safety documentation
- Benefit realization

Where required, the successful bidder will develop or assist to develop policies w.r.t. Wi-Fi network - this could include but is not limited to:

- Security
- Access
- Management
- Ad-hoc policies

Typical statistics for reporting purposes:

- the total percentage uptime for a given period.
- the total average latency for a given period.
- the 30 sites that had the highest downtime for the week inclusive of reason and actions to remedy.
- Any incidents during the week that cause an outage of more than 50 sites, reason, action to remedy and task to prevent re-occurrence.
- List of preventative maintenance actions undertaken for a specific period.
- Speed test results taken at FIZ box location.
- Summary of total uptime against SLA.
- Summary of average latency against SLA.
- Summary of speed tests against SLA.
- Statistics on calls completed within SLA, out of SLA, not completed (and reasons for not completing)
- Summary of month expenses against contract value.
- Number of users accessing the network and usage statistics.
- Number of users since launch or for a given period.
- Internet Bandwidth utilization.
- Statistics on calls completed.
- System capacity and licensing utilization.
- Total sessions logged.
- Sites that are most visited.

3.7.5 RESOURCES

The successful bidder shall provide resources required – this may include but are not limited to (note that this is on and as and when required basis):

- Project/Operational Managers
- Installation and Survey Teams
- Maintenance teams (field technicians)
- System Integrators
- Security Engineers
- Software Experts
- Network Engineers
- Engineer to supervise all work undertaken in the Public Road Reserve.
- Electricians
- Fiber installation/repair teams
- OHSA Safety Officer
- Quality Controller
- All other resources

Project/Operational Managers: Minimum requirement is an appropriate tertiary qualification or relevant certification/accreditation (as recognized by the South African Qualifications Authority SAQA) and at least 2 years of experience. In addition, ITIL certification is required.

Network Engineers: Skills should range from Field Engineers to System Experts with at least 2 years of experience. Only OEM certified professionals are allowed to configure data/radio equipment. This should also include Network Engineers to maintain the current infrastructure, mostly Mikrotik, Ruckus, Ubiquiti, Huawei, Tough Switch and Powerbeam.

Security Engineer: Minimum requirement is an appropriate IT qualification and Security Certification and at least 2 years of experience.

Software Engineers: Minimum requirement is an appropriate IT course(s) and minimum 2 years of experience.

System Integrators: System integration engineer needs a broad range of skills and is likely to be defined by a breadth of knowledge. These skills include software, systems and enterprise architecture, software and hardware engineering, interface protocols, and general problem-solving skills. At least 3 years of experience is required.

Proof of all the certificates must be submitted along with the bid. The following summarized profile must be attached along with certification and CV's:

Name And Surname	
Date of Appointment	
Certifications	
Qualifications	
Experience	
Duration Working For Company	
Designation	
Nature Of Work	

If CoT deems it necessary, it will request a replacement resource if any resource is not performing according to expectations. In addition, should the successful bidder fail to meet SLA's, CoT will instruct the successful bidder to provide sufficient\additional resources to comply with the SLA.

Within the scope and scale of the Wi-Fi networks, the necessary operational support systems must be operational to provide the required support for the following functions - this may include but are not limited to:

- Public Wi-Fi network Management Functions:
- Provisioning of network resources;
- Event monitoring of network resources
- Performance monitoring of network resources;
- Access Network Management Functions

3.7.6 EQUIPMENT/TOOLS/VEHICLES

The successful bidder will furnish all vehicles, equipment and tools used to provide the services required by this Tender. It is the responsibility of the successful bidder to issue test equipment to the required resources. This will include all test equipment such as RF signal testers and optimizers, OTDR's or any other relevant tools. At least one cherry picker is mandated as this will enable fast access to equipment.

3.7.7 QUALITY ASSURANCE

The successful bidder shall have Quality Management System supported and evidenced by the following:

- A Quality Policy.
- A management representative with authority and responsibility for fulfilling QA requirements and for interfacing with CoT in the matters of Quality.
- Procedure for ensuring quality of material and workmanship.
- System to calibrate and maintain required measuring and test equipment.
- Configuration management and change-control mechanism.
- Periodical internal quality audits.

3.7.8 REPAIR OF SURFACES TO ORIGINAL FINISH

The successful bidder shall be responsible for damage to any surfaces or work disrupted because of his/her work. All surfaces damaged during the installation process must be repaired to their original state. Repair of surfaces, including painting, shall be included as necessary. It is the successful bidder's responsibility to obtain the matching paint etc. It is also required of the successful bidder to return the CoT's infrastructure to the same or better condition than received.

3.7.9 SKILLS DEVELOPMENT STRATEGY/TRAINING

Bidders shall submit a strategy to facilitate skills development on how to operate the public Wi-Fi network.

The successful bidder shall provide training to CoT personnel w.r.t. installation, operation, testing, maintenance of system and software including the NOC and all relevant training regarding Public Wi-Fi.

- The quality and content of the training shall be so designed that the CoT personnel shall be sufficiently exposed to all the aspects of planning, engineering, installation, testing, provisioning, operations, etcetera of the networks.
- The training shall also cover necessary hardware and software architecture details.
- The bidder shall specify in its bid the number of trainees, quantum of proposed training, pre-training qualifications required of the trainees and duration of the proposed training.
- The bidder shall provide all training material, modules and documents.
- Training shall be conducted at the CoT premises.

The successful bidder must also allow user training i.e. assisting users to connect.

3.7.10 INVOICES


All invoices must be submitted to the CoT at the end of each month with supporting documentation confirming performance and actual expenditure in terms of the SLA and this Tender.

All invoices must contain the following:

- A reference to this Tender Agreement;
- A purchase order number;
- Detailed supporting documentation proving actual expenditure and performance in terms of this Services agreement; and
- Name of bank, branch name or branch code and account number into which payment is to be made.
- Any other ad-hoc detail/documentation as requested by the CoT

3.7.11 ESCALATIONS/NOTICES/PENALTIES

CoT will issue a notice if a deadline is not met, inclusive of any outstanding documents, late completion etc. The notice shall also serve as an escalation to the CEO of the successful bidder to ensure that proper processes are in place to address the issues.

NOTICE Nr 1 of 202_		 CITY OF TSHWANE IGNITING EXCELLENCE
Date of Notice:		
Issued to:		
Contract Nr:		
Notice Type:		
Referring Documents:		
Document Outstanding:		
Penalty		

Details	
Document Due Date:	
Status:	

Risk Matrix	
Risk Type:	Operational (Technical)
Risk Level:	Low
Consequence if not adhered to:	

Response From Contractor	
Note: Outstanding document to be supplied along with this form.	
Reason for late submission:	
Responsible person:	
Plan to address in future:	
What is the perceived effectiveness of the above plan:	
Name of responsible person:	
Signature of responsible person:	
Date:	
Name of project manager:	
Signature of project manager:	
Date:	
Name of CEO:	
Signature of CEO:	
Date:	

3.8 STATUORY REQUIREMENTS AND LEGAL MATTERS

3.8.1 APPLICABLE LAWS AND OHSA ACT

The successful bidder will be required to comply with the requirements of the applicable laws of the Republic of South Africa inclusive, but not limited to the:

- Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended.
- Municipal Finance Management Act 53 of 2003
- The Protection of Personal Information (POPI) Act No 4 of 2013
- All relevant by-laws of CoT

The successful bidder is responsible for SHEQ (Safety, Health, Environment and Quality) for all employees and their sub-contractor, as it relates to the roll-out and the operations of the public Wi-Fi network and shall provide all necessary Health and Safety documentation as required by the OHSA.

The bidder shall indemnify CoT against any claims and proceedings arising from any infringement by the bidder, his/her employees and their dependents of such laws and regulations.

3.8.2 LEGAL OBLIGATIONS AND PRIVACY

Bidders need to consider legal obligations and privacy requirements. The privacy of users and user information needs to be respected and bidders will be held liability if information is used for unlawful purposes. Information required by law must be logged. Information may not be shared or sold to third parties. All services should be transparent and the purpose of cameras, sensors etcetera should be publicly stated. The landing page can for example be used to notify users of information that will be tracked/recorded while they are using the service.

Bidders must also include in their bid the Privacy Policy. However, the successful bidder's privacy policy will be scrutinized and workshopped and may be subjected to public input to ensure that the policy is acceptable before implementation. CoT Legal Services will need to approve the policy.

Bidders must also address the following:

- Concerns w.r.t. misuse and social issues:
 - Protection against cyber-harassment inclusive of cyberstalking and trolling
 - Exposure to objectionable content
 - Other illegal behavior
- Concerns w.r.t child and public safety
- Prevention of loitering
- Moving of hot spots due to public demand

3.8.3 DISCLAIMER/LIABILITY

Bidder to compile disclaimer and liability statements and submit to CoT for approval. The idea is to display these on the Captive Portal.

Bidder to implement futures and to indicate in the bid the following:

- Protection of copyrighted material
- Prevent of illegal activities
- Protection and handling of privacy concerns

3.8.4 CONSEQUENTIAL DAMAGES

The CoT will not be responsible for any damages (direct or indirect) resulting from the interaction between the successful bidder and the public.

3.8.5 INCIDENTAL DAMAGES

The successful bidder shall protect, defend, indemnify and hold harmless CoT and its employees from and against any and all liabilities, damages, fines, penalties and costs (including legal costs and disbursement) arising from or relating to:

- Any breach of any statute, regulation, direction, orders or standards from any governmental body, agency, or regulator issued with respect to the product/services being supplied/provided under this Contract.
- Any claim made by third parties arising out of the use of the Wi-Fi services being provided using the equipment supplied under the Contract to the extent these are attributable solely to the poor quality or non-compliance of the product/services to the respective specifications.
- Any claims arising from the customers or other service providers, about interruptions or degradation of services due to non-availability of services.
- Any claim that the equipment, services or any value addition component offered and supplied by the Supplier in this Contract, infringe any patent, trademarks or copyright of any third party.

3.8.6 ACCOUNTABILITY

- The bidder will always ensure that all personnel and agents appointed by themselves are sufficiently qualified and/or skilled to perform their duties.
- The bidder will be fully accountable for all actions taken by themselves, as well as any personnel and agents which are appointed by the bidder who will be acting for and be considered an extension of the bidder.

3.8.7 CONFIDENTIALITY

The successful bidder will be required to sign the CoT Non-Disclosure Agreement when appointed.

3.8.8 TECHNICAL AUDIT OF NETWORK/AUDITS

CoT reserves the right to carry out a technical audit of the network through any designated agency from time to time and the successful bidder shall take necessary corrective measures to conform to the performance parameters stipulated in the Tender Document.

The successful bidder shall respond to any Auditor General, Internal Audit or other queries. Normally an RFI (Request for Information) is issued. Once the audit is concluded a CoAF (Communication of Audit Finding) is issued. The successful bidder will need to ensure that audit findings are addressed in a timeous manner.

3.8.9 INTELLECTUAL PROPERTY

All Intellectual Property Rights associated with the Wi-Fi network shall remain/become the sole property of the City of Tshwane UNLESS the bidder specifically list the exclusions as part of their response.

3.8.10 ICASA COMPLIANCE

The bidder will need to provide proof of the Electronic Communications Services (ECS) Class License and the Electronic Communication Network Services (ECNS) Class License. A Class ECNS is needed to build a wireless network in the area and a Class ECS is needed to sell data or voice services over that network.

3.8.11 DOCUMENTATION TO ACCOMPANY BID

The document list below summarizes the technical documentation that needs to accompany the bid. It should be noted that the list may not be completed and therefore does not exempt the bidder should the bidder fail to provide the documentation as requested in any part of this tender document.

Document	
ICASA	Electronic Communications Services (ECS) Class License
ICASA	Electronic Communication Network Services (ECNS) Class License
Business Model	
Technical Pamphlets	Equipment and Software
ITIL compliancy certification	ITIL Foundation
ITIL compliancy certification	ITIL Managing Professional
ITIL compliancy certification	ITIL Strategic Leader
ISO Certifications	ISO 9001: 2015 - Quality Management System
ISO Certifications	ISO 14001:2015 - Environmental Management System
ISO Certifications	ISO 45001:2018 - Occupational Health & Safety Management System
COIDA (Compensation for Occupational Injuries and Diseases Act) Certificate	Certificate of good standing from the Labour Department of South Africa.
Resource qualifications, CV's and certifications	
List of Tools and equipment	
Skills Development Strategy	
List of Software and Licenses	

ANNEXURE 1: CURRENT WI-FI NETWORK

GENERAL ELEMENTS OF THE CURRENT PUBLIC WI-FI NETWORK

Internet Bandwidth:

The internet bandwidth is separate from the CoT's internet. The current internet bandwidth is 5Gb separate from the Cities Bandwidth.

NOC (Network Operations Centre):

The NOC is used to monitor the entire Wi-Fi network and as a call center where users can log incidents/calls.

Core:

Core network consist of servers, switches and switches.

High Sites:

The high sites connect several FIZ's (Free Internet Zones) back to the NOC (Network Operations Centre).

FIZ (Free Internet Zone):

Generally, a FIZ (Free Internet Zone) has the following equipment:

- 1 x Custom Made Waterproof Wi-Fi box
- 1 x 8 port switch
- 4 x Surge arrestors
- 1 x Powerbeam
- 1 or more AP (Ruckus/Huawei)

Depending on the site location, 2 x Sector AP's and 4 x surge arrestors might be installed.



SERVICES OF THE CURRENT PUBLIC WI-FI NETWORK

The following services is provided via the current Wi-Fi project:

- Internet connectivity
- Unlimited access content portal: Portal where free content is provided that does not deduct from the user's bandwidth capacity for example job searching and educational content
- Call and Monitoring Centre (NOC)
- Security: Click-to-Connect and URL (Uniform Resource Locator) filtering (prevent access to prohibited websites).
- Back-up Power at High-Sites

ANNEXURE 2: ACRONYMS AND DEFINITIONS

For the purpose of this Tender, unless the context requires otherwise:

AC means Alternating Current an electrical supply where electric charge changes direction periodically;

Agreed Sites means those sites identified by the CoT where Wi-Fi services is required;

AP means Access Point and is a networking hardware device that allows a Wi-Fi devices to connect to a network;

BBBEE Broad-Based Black Economic Empowerment (BBBEE or B-BBEE) is a form of economic empowerment initiated by the South African government;

Best Practices means a technique, methodology or practice that would be adopted by a Reasonable or Prudent operator;

Business Day means any day except a Saturday, Sunday or official public holiday in South Africa;

COBIT Control Objectives for Information and Related Technologies is a good-practice framework for information technology (IT) management and IT governance;

CoC means Electrical Certificate of Compliance and is issued by a Registered Person after he/she has inspected and tested the electrical installation;

CoT means the City of Tshwane a municipality established in terms of the Local Government Municipal Structures Act 117 of 1998;

CSI means Corporate Social Investment and encompasses projects that have a strong developmental approach and utilize business resources to benefit and uplift communities and are not primarily driven as marketing initiatives;

Dark Fiber refers to individual fibers that have yet to be used within cables that have been already laid. They are hence not yet connected to any device and are only there for future usage;

Defect means a material defect in the Network Equipment which renders that equipment unfit for the purpose and use intended;

EC Act means the Electronic Communications Act 36 of 2005;

ECNS Class License means the electronic communications network service class license issued in terms of the EC Act;

ECS Class License means the electronic communications service class license issued in terms of the EC Act;

Equipment means any equipment or materials forming part of the Network;

ESKOM means Electricity Supply Commission, the South African electricity public utility, established in 1923;

FCAPS means fault, configuration, accounting, performance, security, the management categories into which the ISO model defines network management tasks and is the ISO Telecommunications Management Network model and framework for network management;

FIZ means a Free Internet Zone to be established in the agreed sites;

GIS means Geographic Information System, a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data;

GPS means Global Positioning System, a satellite-based navigation system;

GUI means graphical user interface, a type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators;

Hot-Spots means each physical location of the radio access points offering the service;

HTTPS means Hyper Text Transfer Protocol Secure, and is the secure version of HTTP, the protocol over which data is sent between your browser and the website that you are connected to.

Hz means Hertz: The hertz (symbol: Hz) is the derived unit of frequency in the International System of Units (SI) and is defined as one cycle per second;

ICASA means the Independent Communications Authority of South Africa. It is an independent regulatory body of the South African government, established in 2000 by the ICASA Act to regulate both the telecommunications and broadcasting sectors in the public interest.

ICT means Information and Communications Technology;

ID means identification

IEEE means Institute for Electrical and Electronics Engineers

IETF means The Internet Engineering Task Force – the body that develops and promotes Internet standards.

Infrastructure Network Layer includes all the infrastructure parts such as dark fibre, water towers, cabinets, conduits, ducts, poles, right of way, etc.

IP means Internet Protocol;

IPTV (Internet Protocol Television) is a system where a digital television service is delivered by using Internet Protocol over a network infrastructure, which may include delivery by a Wi-Fi connection. A general definition of IPTV is television content that, instead of being delivered through traditional broadcast and cable formats, is received by the viewer through the technologies used for computer networks;

ISO means the International Organization for Standardization (ISO), an international standard-setting body promoting worldwide proprietary, industrial and commercial standards;

ISP means Internet Service Provider and is an organization that provides services accessing and using the Internet;

ITIL means Information Technology Infrastructure Library and is a set of detailed practices for IT (Information Technology) service management that focuses on aligning IT services with the needs of business;

ITU International Telecommunications Union, an agency of the United Nations responsible to standardize and regulate international radio and telecommunications;

Jitter is a measure of the variation of the time between the arrival of one packet and the next;

KPI means Key Performance Indicator, and is a measurable value that demonstrates how effectively a company is achieving key business objectives;

Latency is the time delay between two hosts on a network or internetwork, usually measured in milliseconds;

Laws means any statute, ordinance, judicial decision, executive order, regulation, common law, rule or by-law of any jurisdictions that are applicable to the relevant party;

MPLS means Multi-Protocol Label Switching, a technology used in provider backbone networks to allow multiple protocols to be carried over a converged routing infrastructure. MPLS uses one or more extra packet headers, which are added to the underlying payload;

ms is millisecond a measurement of time;

Network Equipment means the equipment procured, installed and operated by the successful bidder or its agents in the course of providing the service;

NGFW means Next Generation Firewall, and is an integrated network platform that is a part of the third generation firewall technology, combining traditional firewalls with other network device filtering functionalities;

NMS means Network Monitoring/Management System, software that enables network administrators or network managers to perform their functions;

NOC Network Operations Centre means operations support systems to configure and provision the network nodes, manage performance, do monitoring and perform fault and security management;

NTP means Network Time Protocol, and is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.

PDF means Portable Document Format, and is a file format used to present documents in a manner independent of application software, hardware, and operating systems;

Open Access means that anyone, on equal conditions with a transparent relation between cost and pricing, can get access to and share communication resources on one level to provide value added services on another level in a layered communication system architecture. Simply put, Open Access plans to give consumers more choices for equipment, services and service vendors;

Operational Requirement means the detailed phase by phase technical requirements indicated in this tender specification;

OSS means Operational Support System;

QoS means Quality of Service: Quality of Service refers to many aspects of the quality of service delivery – availability, packet reordering, timing accuracy, time-to-repair, time-to-provision, etc;

RADIUS means Remote Authentication Dial-In User Service, and is a client/server protocol and software that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service;

RF means Radio Frequency, and is any of the electromagnetic wave frequencies that lie in the range extending from around 3 kHz to 300 GHz;

TENDER means Request for Proposal;

SANRAL means the South African National Roads Agency Limited, a South African parastatal responsible for the management, maintenance and development of South Africa's national road network.

Service means limited free wireless access to the internet to the internet for public users via the Wi-Fi Network established to create the FIZ;

Services and Application Layer: All services provided over an IP network such as VoIP, Fax over IP, IPTV, Internet Access. Standards compliant Adhering to all the relevant standards applicable to the technology in question;

SLA means Service Level Agreement;

SMS means Short Message Service, and is a text messaging service component of most telephone, World Wide Web, and mobile telephony systems;

SNMP means Simple Network Management Protocol, and is a popular protocol for network management;

SSH Secure Shell is a cryptographic network protocol for operating network services securely over an unsecured network;

TACACS means Terminal Access Controller Access Control System, and is an older authentication protocol that allows a remote access server to forward a user's logon password to an authentication server to determine whether access can be allowed to a given system;

Technology may include a collection of equipment, software, or hardware used individually or in combination for a specific purpose or a particular standard;

Throughput means the amount of data transferred from the source to the destination in a specified amount of time;

TRT means Tshwane Rapid Transit (Pty) Ltd is a corporate legal entity in terms of the Companies Act 71 of 2008, as amended, responsible for rapid bus services within the City of Tshwane and surrounding areas;

UPS means Uninterruptible Power Supply, and is an electrical apparatus that provides emergency power to a load when the input power source or mains power fails;

URL means Uniform Resource Locator, also known as a web address. It is the global address of documents and other resources on the World Wide Web.

VLAN means Virtual Local Area Network, and is any broadcast domain that is partitioned and isolated in a computer network at the data link layer.

VoIP means Voice over Internet Protocol, the transmission of voice and multimedia content over Internet Protocol (IP) networks.

Wi-Fi means the wireless local area network using IEEE 802.11 standards which allows Wi-Fi-enabled devices to connect to the Wi-Fi Network when within range of a Wi-Fi Network; and

Wi-Fi Network means a network consisting of one or more Hot-Spots that enable connection to the internet.

Wi-Fi Network means a completed network and network equipment consisting of one or more Hot Spots that enable connection to the Internet.

WLAN means Wireless Local Area Network, and is a wireless computer network that links two or more devices using a wireless distribution method within a limited area.

WPA means Wi-Fi Protected Access, and is a security standard for users of computing devices equipped with wireless internet connections.

SECTION 4:
OCCUPATIONAL HEALTH AND SAFETY
CONSIDERATIONS AND AGREEMENT

SECTION 4: HEALTH AND SAFETY CONSIDERATIONS AND AGREEMENTS

(RELEVANT TO ALL PARTS OF THE SPECIFICATION)

INTRODUCTION

The City of Tshwane requires a high standard of safe work performance from all employees and expects that the standard be maintained by the contractor within the Municipality's jurisdictional area or on its premises.

Irrespective of human considerations, the maintaining of these health and safety rules shall be the execution of the prescribed legal requirements. These rules are not to hinder the contractor in rendering services or indemnify the contractor from any legal responsibility to ensure healthy and safe work circumstances.

The City of Tshwane shall assist the contractor in any practical considerations to accommodate the healthy and safe execution of work and therefore require co-operation in the execution of these safety rules.

SECTION 4:
OCCUPATIONAL HEALTH AND SAFETY
CONSIDERATIONS AND AGREEMENT

SECTION 4.1:
OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

SECTION 4.1
OCCUPATIONAL HEALTH AND SAFETY AGREEMENT
FOR CONTRACT WORK IN THE CITY OF TSHWANE

This agreement is mandatory for all contractors appointed by the City of Tshwane (COT) or any other institution that do work for or on behalf of CoT (or any other institution in the area Jurisdiction of Tshwane).

This agreement is between:

THE CONTRACTOR:

Herein represented by

in his capacity as

Being duly authorized hereto hereinafter referred to as “contractor”.

Compensation Commissioner Number.....

(Attach a copy of the Registration Certificate to this agreement)

Company : Name.....

Registration Number.....

CEO : Name.....

ID umber.....

Physical Address.....

And the

CITY OF TSHWANE

(Hereinafter referred to as “the Council”)

1 Definitions

1.1 CONTRACTOR - Means the “Contractor” as defined in the “Principal Contract” annexed hereto in his capacity as mandatory.

1.2 MANDATORY - Includes an agent, contractor or subcontractor for work to be done or service rendered, but without derogating from his status in his own right as an employer of people or user of equipment, machinery, tools or materials.

1.3 THE PRINCIPAL CONTRACT - Means the contract annexed hereto as annexure “A”.

1.4 COUNCIL - Means the City of Tshwane Metropolitan Municipality.

1.5 RISK CONTROL OFFICER - A person appointed in writing by Council.

1.6 Any definitions contained in any Statute hereinafter mentioned shall have the meaning allocated to it by the specific statute.

2 Objective

2.1 Whereas Council and the Contractor have entered into a contract for service (work) as fully indicated in the “Principle Contract” and whereas the “Contractor” agreed to indemnify Council against the risks stated hereunder whether foreseeable or not, and, whereas it is agreed between the parties that it is of cardinal importance to safeguard both Council and the Contractor’s obligation in terms of relevant legislation as well as to extend the obligation as a company and/or legal person and/or person as an entity concerned with health, safety and the environment.

2.2 These rules are applicable to all contractors performing work for Council within the jurisdictional area of the Council and on any premises which are owned, rented or developed by the Council.

2.3 The Council acts through those officials or persons who are generally or specifically charged with the responsibility, in terms of legislation, as well as any other official or person who is generally or specifically charged with the control and supervision of the project.

IT IS HEREBY AGREED AS FOLLOWS:

3 Indemnities

3.1 The “Contractor” hereby indemnifies the “Council” against any loss in respect of all claims, proceeding, damages, costs and expenses arising out of any claim or proceeding pertaining to the non compliance by the “Contractor” of any statutory requirements and/or requirements regarding the following Acts in particular pertaining to the provisions of:

The Occupational Health and Safety Act 85 of 1993 (as amended).
The Health Act 63 of 1977.

Road Traffic Act 29 of 1989 (as amended).
 Environment Conservation Act 73 of 1989.
 The National Water Act 36 of 1998.
 The Criminal Procedure Act 51 of 1977.
 The Explosives Act 26 of 1956.
 The Arms and Ammunition Act 75 of 1969.
 Compensation for Occupational Injuries and Diseases Act 130 of 1993.
 The Labor Relations Act 66 of 1995.
 Construction Industry Development Regulations Act 38 of 2000.
 The Unemployment Insurance Act 30 of 1966 (as amended).
 The Basic Conditions of Employment Act 75 of 1997 (as amended).
 Standards Act 29 of 1993.

Any statutory provisions in any act and/or any law or bylaw of any local government and/or any published official standard incorporated into any statute or bylaw relating to the completion of the work set out in the "Principal Contract".
 Any other health and safety standard prescribed by the "Council".

- 3.2 The "Contractor" shall ensure that he familiarizes himself with the requirements of the above legislation and that he, his employees and any subcontractor will comply to all the statutory provisions contained in them.
- 3.3 The "Contractor" shall indemnify the "Council" in respect of any physical loss or damage to any plant, equipment or other property belonging to the "Contractor" or for which he is responsible and he hereby indemnifies the "Council" against any loss in respect of all claims, proceedings, damages, costs and expenses consequent upon the loss of or damage to any plant, equipment or other property belonging to, or which is the responsibility of, any subcontractor, agent or employee of the subcontractor.
- 3.4 The "Contractor" shall and hereby indemnifies the "Council" against any liability, loss, claim or proceedings whatsoever, whether arising in common law or by statute, consequent on personal injuries to or the loss of health or death of any person whosoever arising out of or in the course of or caused by the execution of the "Principal Contract".
- 3.5 The "Contractor" shall and hereby indemnifies the "Council" against any liability, loss, claim or proceedings consequent on loss of or damage to any movable or immovable property arising out of or in the course of or caused by the execution of the "Principal Contract" and due to any act or omission of the "Contractor", his agents, servants or subcontractors.

4 INSURANCE

- 4.1 The "Contractor" shall insure and shall remain insured in respect of public liability and common law liability until the completion of the "Principal Contract" and/or whilst the "Contractor" and/or his subcontractor and/or his employees are present on the "Council" premises, whichever period is the longest. The public liability and common law liability policies shall contain clauses indemnifying the "Council" against risks arising out of the execution of the "Principal Contract". The provisions of this clause shall in no way limit the liabilities assumed by the "Contractor" or the indemnities given by him in terms of this agreement.
- 4.2 The abovementioned insurance shall include:
 - 4.2.1 Insurance covering the "Contractor's" liability to any employees, his own or subcontractors, whose earnings are in excess of earning as defined in the Compensation for Occupational Injuries and Diseases Act, 130 of 1993;

- 4.2.2** Any other insurance cover that will adequately make provision for any losses and/or claims arising from his and/or his subcontractors' employees acts and/or omissions on the "Council" premises.
- 4.2.3** The "Contractor" shall provide the "Council" with proof in the form of a written statement from the insurance company concerned that the insurances required by the "Principal Contract" have been effected.

4.3 CLAIM DOCUMENTATION

The Project Manager must obtain all relevant information from the Contractor/Sub-contractor and complete the Contractor Claim Form, included in this report as Annexure B that is available on the Intranet. The project number must be stated on the Contractor Claim Form.

The Project Manager must submit with the Contractor Claim Form a detailed cost sheet indicating the estimate of the loss or damage.

Any misrepresentation, mis-description or non-disclosure of material facts, at the option of the insurers, can result in claims submitted being declared null and void.

4.4 AUTHORIZATION OF CLAIM FORMS

It is imperative that a formally delegated official or his nominee of the Employer should authorize the Contractor Claim forms as proof of the appropriate authorization, verification and approval of claims submitted. The Strategic Executive Director must provide an authorization letter to the Section: Insurance and Risk Management stating the names and the specimen signatures of the delegated official or his nominee within 30 (thirty) days from approval of this report by Council. Should the delegated official or his nominee not sign the relevant claim form, the claim will be repudiated as this may lead to inappropriate independent verification of the validity of claims, thereby increasing the risk of insurance fraud and consequent reputation damage to the Employer.

4.5 CONTRACTOR TO PAY DEDUCTIBLES

Any claim in terms of the insurance affected by the Employer shall be subject to the Contractor being responsible for the payment of the amount stated in the Annexure to the Policies as being the deductible (first amount payable or Excess) as defined in the Certificate of Insurance issued by the Employer's insurer in terms of the Policy.

4.6 SETTLEMENT OF CLAIMS

All incidents reported to the Section: Insurance and Risk Management in respect of an occurrence, which is likely to give rise to a claim will be forwarded to the Employer's insurer who will take the necessary actions for the settlement of any such claims.

The Contractor shall negotiate for the settlement of claims with the Employer or the Employer's insurer through the Section: Insurance and Risk Management. The Employer's Chief Financial Officer will authorize all settlements of claims. The Contractor will also sign the Agreement of Loss document issued by the Insurer in order to settle the claims.

Should action for the settlement of any such claim to the satisfaction of the Project Manager not be taken by the Contractor/sub-contractor within 30 (thirty) days after receipt of such claim by the Contractor/sub-contractor, the Employer or the Employer's insurer may settle any such claim, after giving the Contractor notice of its intention to do so; provided that no such claim

shall be settled by the Employer or the Employer's insurer without first consulting the Contractor/sub-contractor.

The foregoing provisions of this Sub-Clause shall apply mutatis mutandis to any such claim received by the Contractor directly. It is distinctly understood that should the Employer or the Employer's insurer not settle any such claim at the earliest opportunity, it shall in no way prejudice the Employer or the Employer's insurer's rights to recover from the Contractor nor shall the Contractor raise any such defence against the Employer or the employer's insurer.

Any moneys which become payable as a result of a claim under the insurance effected by the Employer shall be paid to the Employer after deduction of the deductible amount (first amount payable or Excess), who shall pay such amount to the Contractor or to the party rectifying, repairing or reinstalling or who has suffered the loss or damage, but this shall in no way affect the Contractor's obligations in terms of the Contract.

The Contractor and Sub-contractor shall be free to effect and maintain at their own cost any additional insurance which the Contractor/Sub-contractor deem necessary to cover damage, loss or injury not insured in terms of the insurance effected by the Employer's insurer. The cost of the additional insurance will be for the account of the Contractor/Sub-contractor.

4.7 CONTRACTOR TO INSURE

The Contractor/Sub-contractor must obtain for the duration of the contract until the issuing of the Defects Certificate or the end of the Maintenance Period, the following insurance policies in the name of the Contractor (including all Subcontractors whether nominated or otherwise) at an insurance company within 14 (fourteen) days of the notification of acceptance of the tender and must pay all premiums and supply proof thereof to the relevant Project Manager 30 (thirty) days before the inception of the contract, that the policies have been taken out and that all premiums have been paid:

All Risk Insurance cover with regard to all Plant and Materials and Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof.

Motor Vehicle and Passenger Liability Insurance cover indicating the registration numbers of the vehicles owned, leased or hired by the Contractor that are used in the execution of the contract to the amount of at least R10-million per claim with the number of claims unlimited.

SASRIA cover for motor vehicles and Plant and Materials and Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof.

In respect of Plant and Materials and Equipment and Motor Vehicles brought onto the Site by or on behalf of Subcontractors, the Contractor shall be deemed to have complied with the provisions of this Sub-Clause by ensuring that such Subcontractors have similarly insured such Plant and Materials and Equipment and Motor Vehicles.

Without limiting the Contractor's obligation in terms of the Contract, the Contractor will effect and maintain for the duration of the contract period until the issuing of the Defects Certificate or the end of the Maintenance Period insurance against all accidents or misfortunes including accidental loss of or damage to tangible property (except the Works, Plant and Materials and Equipment) and liability for accidental death of or bodily injury to or illness or disease contracted by any person (not an employee of the Contractor) occurring during the Period of Insurance

and arising out of or in connection with the performance of the Insured Contract at the Contract Site as defined in the Schedule at any insurance company or under the policy effected by the Employer within 30 (thirty) days before the inception of the contract. The minimum limit of indemnity for any one event is R5-million and the number of claims will be unlimited.

4.8 INSURANCE PREMIUM PAYABLE

The Contractor will be liable for the payment of the insurance premium as calculated by the Employer's insurer within 14 (fourteen) days before the inception of the contract to the Section: Insurance and Risk Management, should the Contractor take out the Public Liability Insurance cover in terms of the insurance policy of Sub-Clause 1(e) of this Clause.

Proof must also be submitted that the Contractor complies with the conditions of the following legislation:

Compensation for Occupational Injuries and diseases, 1993.

- Unemployment Insurance Act, 1996.
- The Contractor shall in respect of the Site of the contract works appoint in writing a competent person to meet the requirements of the Health and Safety Act, No 85 of 1993 as amended.

The Project Manager involved must furnish the required insurance documentation, by 30 (thirty) days before the inception of the contract, to the Section: Insurance and Risk Management.

5 Performance Safe Working Practice

- 5.1 The "Council" requires a high standard of safe work performance from all employees and expects that the standard be maintained by the "Contractor" within the "Council's" jurisdictional area or on its premises.
- 5.2 Irrespective of human considerations, the maintaining of these health and safety rules shall be the execution of the prescribed legal requirements. These rules are not to hinder the "Contractor" in rendering services or indemnify the "Contractor" from any legal responsibility to ensure healthy and safe work circumstances.
- 5.3 The "Council" shall assist the "Contractor" in any practical considerations to accommodate the healthy and safe execution of work and therefore require co-operation in the execution of these safety rules.

6 Lock out Procedure

- 6.1 When power or air driven machines or equipment, electrical apparatus or pipe lines are examined, repaired, adjusted, cleaned, lubricated or serviced in any other way than normal servicing, then all isolating switches, -levers, valves or appliances must be put in the "off" or "closed" position and locked.
- 6.2 Should more than one team work on a machine, then each person in control of a team, must put a separate lock on the switch, lever, valve or appliance.

7 CRANES, VEHICLES AND HOISTING

- 7.1 For each crane or hoisting equipment used, the "Contractor" must submit a valid and recent test certificate or other form of the last examination of the machine or equipment, to the "Council".

- 7.2 Only trained personnel with written permission and where determined by Law, with a valid driver's license, may be allowed to operate any electrical diesel or petrol driver overhead crane, hydraulic or electrical hoisting equipment, self driven forklift, tractor or any other crane or vehicle. No employee of the "Contractor" may perform any overhead work or work on an overhead crane or hoisting equipment or work near cranes or crane rail, before:
- an agreement was concluded with the "Council".
 - Approval has been obtained from the "Council" to perform the work.
 - All applicable danger – and warning symbolic signs are put into position, or exemption, if applied for, is in operation.
- 7.3 The "Contractor" shall be wholly responsible for any loss or damage to cranes, hoisting equipment, plant, machines or equipment brought onto the work site by the "Contractor"

8 MACHINE VALANCES, PROTECTION AND FENCING

- 8.1 No machine valances, protection or fencing may be removed from machines, manholes, etc without the written permission of "Council" if applicable exemption procedures were not appropriated.

9 SCAFFOLD, LADDERS, TOOLS AND EQUIPMENT

- 9.1 No equipment or appliance belonging to "Council" may be used without written permission from "Council".
- 9.2 Unless prior arranged, "Contractors" must bring sufficient tools and equipment to the site to finish the contract, including offices and storerooms. The mentioned equipment remains the responsibility of the "Contractor" with respect to loss, damage and theft.
- 9.3 In exceptional cases, where tools and equipment belonging to "Council" are used to finish the contract, the said equipment and tools are used on own risk and the "Contractor" indemnifies "Council" from any claims that may arise. The said indemnity must be in writing, as well as information regarding the loan period, identification and condition of tools and equipment. The "Contractor" is responsible for the returning of said tools and equipment in the same condition or better. The "Contractor" is responsible to "Council" for any damage or excessive wear of such tools or equipment and material.

10 EXCAVATIONS

- 10.1 Before any excavations commence, written permission must be obtained from "Council" to confirm the location of existing electrical cables, water pipes, etc.
- 10.2 All excavations and obstructions in floor, tar and dirt surfaces must be fenced effectively and safeguarded between sundown and sunup with a sufficient amount of red/yellow warning lights and symbolic signs.
- 10.3 The surrounding area must be kept clean, safe and tidy during excavation. Excess material may not obstruct unnecessarily.
- 10.4 If any property is in danger during excavation, it must be supported and the proposed support work must be submitted to the Department of Labour (OHS) and "Council" for approval.
- 10.5 Written permission must be obtained from "Council" to grant admittance to restricted areas as well as areas where dangerous or poisonous gases are present.
- 10.6 That all excavations be done in accordance with the stipulations of the Occupational Health and Safety Act.

11 FIRST AID

11.1 The "Contractor" must provide and maintain a first aid box equipped according to legal requirement where more than (5) five persons are employed. The first aid box must be in the care of a person with a competency certificate from one of the following organizations:

- (i) SA Red Cross Association;
- (ii) St John's Ambulance;
- (iii) SA First Aid League; or
- (iv) A person or organization approved by the Chief inspector for this purpose.

11.2 A visible notice must be put up on any work premises with the name of the person responsible for first aid. In an emergency "Council's" Ambulance / Fire Department or emergency services may be contacted at (012) 310 6200.

12 FLAMMABLE LIQUIDS

The "Contractor" shall be held responsible for the necessary precautionary fire prevention measures. No smoking signs must be put up where applicable. The "Contractor's" employees must be informed of "Council's" fire prevention measures and evacuation procedures.

13 COMPENSATION BY CONTRACTOR

The "Contractor" shall be held responsible for all loss of and damage to property, the death or injury of persons, the resultant loss or damage suffered as well as all law suits, claims, costs, charges, fines and expenses due to negligence, violation of statutory liability or neglect of the "Contractor" or the "Contractor's" employees.

14 TRANSGRESSION OF RULES AND MISBEHAVIOR

The "Contractor" is warned that any act(s) leading to damage or loss of employees of the "Contractor" or the "Council" shall not be tolerated. The "Council" may (without any reason) demand that any employee of the "Contractor" be withdrawn from the principal "Contract" or site.

15 INCIDENT REPORTING

15.1 All incidents referred to in Section 24 of the Occupational Health and Safety Act and or other incidents shall be reported, by the "Contractor", to the Department of Labor, as well as to the "Council" and should such an incident take place outside normal working hours, on a Saturday, Sunday or Public holiday to Capital Park Power Management at telephone no. 324-3495 or 339-9027. The "Council" shall further be provided with a written report relating to any incident.

15.2 The "Council" will obtain an interest in the issue of any formal inquiry conducted in terms of the Occupational Health and Safety Act in any incident involving the "Contractor" and/or his employees and/or his subcontractors.

15.3 The "Contractor" undertakes to report to "Council" anything deemed to be unhealthy and/or unsafe and that he undertakes to verse his employees and/or subcontractors in this regard.

15.4 In the event of an occurrence, which is likely to give rise to a claim under the insurance policy affected by the Employer, the Contractor/Sub-contractors and Project Manager will adhere to the following procedures:

In addition to any statutory obligations and/or requirements contained in the General Conditions of Contract, the Contractor shall notify the Employer and the Project

Manager of every occurrence within 48 (forty-eight) hours giving the circumstances, nature and an estimate of the loss or damage.

The Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management. Should the incident be reported by the Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Strategic Executive Director motivating the reason(s) for the late reporting of the incident, but the Project Manager must take note the Insurer might repudiate the loss if it is found that the insurers rights have been compromised as a result of the late reporting.

The following documentation must be included with the claim documentation:

Photos of damages caused or suffered as proof or substantiation of the claims.

In the event of Insured Property being damaged during the Contract Works beyond economical repair, the property must be safeguarded and be handed over to the Employer's insurer for salvage.

The Section: Insurance and Risk Management will inform the Employer's insurer of the incident. The Contractor/Subcontractor shall afford all reasonable access to the Site to the Employer, the Project Manager, the Employer's insurers and/or representatives for the purpose of assessment of any loss or damage.

15.5 REPORTING OF CATASTROPHIC INCIDENTS

In the event of an occurrence, which is likely to give rise to a claim, under the insurance policy effected by the Employer, with an estimated loss or damage of more than R250 000,00, the Contractor and the Project Manager will adhere to the following procedures:

In addition to any statutory obligations and/or requirements contained in the General Conditions of Contract, the Contractor shall notify the Employer and the Project Manager of every occurrence within 24 (twenty-four) hours giving the circumstances, nature and an estimate of the loss or damage.

The Project Manager must notify the Section: Insurance and Risk Management on the same day that the Contractor/Sub-contractor has notified the Project Manager of the incident.

The Section: Insurance and Risk Management will notify the Employer's insurer of the incident. The Contractor/Sub-contractor shall afford all reasonable access to the Site to the Employer, the Project Manager, the Employer's insurers and/or representatives for the purpose of assessment of any loss or damage.

The Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management. Should the incident be reported by the Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Strategic Executive Director motivating the reason(s) for the late reporting of the incident.

Should the relevant claim documentation not be submitted within 30 (thirty) days, the claim will be repudiated.

15.6 REPORTING OF CRIME RELATED INCIDENTS

All crime related incidents, losses or shortages irrespective of the value, must be reported within 24 (twenty-four) hours by the person who was involved or who has discovered the incident to the nearest South African Police Services (SAPS) station. The name of the Police Station, Investigation Officer and the Case number must be obtained and stated on the Contractor Claim Form. Should the incident not be reported to the SAPS, then the claim will be repudiated.

16 LIAISON AND SUPERVISION

The “Contractor” hereby undertakes to liaise on a regular basis with the designated Risk Control Officer and “Council” representative regarding any hazards or incidents that may be identified or encountered during the performance of the “Principal Contract”.

17 SERVICE INTERRUPTION

Should any work done by the “Contractor” cause a possible interruption, written permission must be obtained from “Council”, before such work commences. The “Contractor” may not switch on or off any compressed air, steam, oxygen, vacuum supply or electrical supply without written permission from the “Council”.

18 CONFIDENTIALITY

- 18.1 The “Contractor” and his employees shall regard all data, documentation and information of the contract and related documentation as confidential.
- 18.2 Lost documentation/plans or related documentation shall immediately be reported in writing to the “Council”.
- 18.3 The “Contractor” shall not put up any advertisements or billboard at the site without permission.
- 18.4 The “Contractor” shall not take photographs of the contract site or part thereof or any work process or part thereof, without written permission from the “Council”, or have photographs taken, published or let it be published.

19 CONTRACT SITE PRESERVATION

Employees of the “Contractor” shall not be allowed entrance to the site unless a valid identity document, issued by “Council”, is displayed. The mentioned documents shall only be valid for a limited period, where after it must be renewed.

20 COMPLETION OF WORK

The “Contractor” or his employees shall not leave the contract site before the “Council” is satisfied that the contract is completed according to the requirements and standards set out in the contract and that the working site is left in a satisfactory and safe condition.

21 LIQUOR, DRUGS, DANGEROUS WEAPONS AND FIREARMS

The “Contractor” shall ensure that no liquor, drugs, dangerous weapons or firearms be brought onto the premises.

22 SEARCHES

The "Contractor" and any person engaged in the contract work may at any time be searched by "Council" appointed security personnel and all packages, suitcases, etc. must be presented to the access control point for examination prior to them being brought onto the property or leaving the property.

23 GENERAL CONDITIONS

23.1 Notwithstanding anything to the contrary in this agreement, it is hereby specifically determined that the "Contractor-"

23.1.1 shall have acquainted himself and be conversant with the contents of all statutory provisions applicable to the health and safety of workers and other persons on the site including the execution of the work, and in particular the conditions contained in the Occupational Health and Safety Act, 1993 (Act 85/1993), and the regulations promulgated in terms thereof, and shall comply therewith meticulously and in all aspects and/or take care that it is complied with;

23.1.2 shall be obliged to immediately execute all instructions given to him by an authorized representative of "Council" in order to ensure and uphold the implementation and enforcement of the provisions referred to in sub-paragraph 1, to the satisfaction of the said representative;

23.1.3 shall indemnify the "Council" against any or all liability which may be incurred by the "Council" as a result of the omission of the "Contractor", his employees, sub-contractors and/or representatives to comply with the provisions referred to in sub-paragraph 1, or to ensure that it shall be complied with;

23.1.4 shall undertake to pay upon demand any and/or all legal costs and other expenses which "Council" may have incurred as a consequence of any criminal charges or other proceedings pending against, or involving the "Council" as a result of the contravention or non-compliance by the "Contractor", his employees, sub-contractors and/or representative of any of the statutory provisions referred to in sub-paragraph 1.

23.1.5 Should the "Contractor" neglect to immediately execute any health and safety written orders issued to him, or to his employee in charge of the works, in terms of the stipulations of sub-paragraph 2, the "Council" shall be entitled to suspend the execution of the works and take the necessary steps to execute or have such order executed. Under these circumstances the contractor shall be obliged to pay "Council", upon demand, all costs and expenses incurred by "Council", in order to execute or have the said orders executed.

23.1.6 Should the abovementioned steps not establish a healthy and safe work environment the "Council" will be entitled to terminate the contract without incurring any further costs or claims from the contractor.

24 “CONTRACTOR” IDENTIFICATION BOARD

24.1 The “Contractor” shall provide on any work premises a temporary identification board containing at all worksites the following information:

- Company name
- On behalf of which division/department the work is being done
- The contact number and name of the person representing the “Contractor”
- The contact number and name of the person representing “Council”

24.2 The specifications of the identification board shall be as follows:

- Size: 900mm x 900mm
- Material: The board must be constructed of aluminium or similar strength material.
- Letter size: Letters must be at least 70mm in height.

24.3 The identification board must be displayed in a conspicuous manner at the worksite of the contractor for the duration of the work performed.

25 ACKNOWLEDGEMENT

The “Contractor” hereby acknowledges that he has read and received a copy of the “Principal Contract” and agrees to be bound by and undertakes to observe all the terms and conditions of the “Principal Contract”. This appointment is made in terms of Section 37(2) of the Occupational Health and Safety Act, 85 of 1993.

26 EXCEPTIONS AND OMISSIONS

REMARKS

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 Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE:

DATE:

THE CONTRACTOR

SIGNED AT ON THIS DAY OF

WITNESSES:

.....

THE CONTRACTOR

1.

2.

THE COUNCIL

SIGNED AT ON THIS DAY OF

WITNESSES:

.....

THE COUNCIL

1.

2.

INDEMNITY CERTIFICATE

Contractor : _____

Employer : _____

Contract : _____

I/we _____ Hereafter the "Contractor"

"Contractor" hereby indemnifies the City of Tshwane against any claim of whatever sort which may arise directly or indirectly from the execution by me/us of the above-mentioned contract and which may be instituted against "Council", as well as of any loss or damage which the "Council" suffers or expenditure the "Council" incurs to prevent responsibility for such claim, loss or damage, whatever the cause of such claim may be or whatever loss or damage the "Council" suffers.

THUS done and signed at on this day of

..... 20....

WITNESSES:

1.

CONTRACTOR

2.

COUNCIL

ACKNOWLEDGEMENT CERTIFICATE

Iin my capacity as.....

Duly authorized hereto.....representing

..... Contractors, acknowledge receipt of a copy of the City of Tshwane's safety manual for contractors and the under mentioned person as my supervisor regarding all works and services which must be executed by the Contractor. The appointment is done in terms of the Occupational Health and Safety Act, 1993 (Act 85/1993).

SIGNED AT ON 20....

I..... Accept the abovementioned appointment, and declare that I am familiar with the contents of the City of Tshwane's Substructure's Safety Manual for contractors.

CASUALTIES REGISTRATION NUMBER

SIGNED AT ON 20....

SIGNATURE.....

WITNESSES: 1

2.

A copy of this certificate shall be submitted to the "Council" before any work commences.

SECTION 4:
OCCUPATIONAL HEALTH AND SAFETY
CONSIDERATIONS AND AGREEMENT

SECTION 4.2:
HEALTH AND SAFETY CONSIDERATIONS

REFERENCES TO THE SCOPE OF WORK I.T.O. OCCUPATIONAL
HEALTH AND SAFETY ACT AND REGULATIONS

References to the Scope of Work i.t.o. Occupational Health and Safety Act and regulations.

1. INTRODUCTION

Health and Safety Specifications is a documentation of all the health and safety requirements pertaining to the construction works so as to ensure health and safety of affected persons.

The Health and Safety Specifications are prepared to discharge The Employer's responsibilities in terms of the Occupational Health and Safety Act, Act No. 85 of 1993 (OSHACT) and the attendant regulations. The most noteworthy of these regulations are the Construction Regulations (GNR 1010 of 18 July 2003), the General Administrative Regulations (GNR 929 of 25 June 2003) and the General Safety Regulations (GNR 1031 of 30 May 1986 and subsequent amendments).

2. DEFINITIONS

Apart from the definitions set out in the OHSACT and the accompanying Regulations, the following definitions apply:

The Employer: City of Tshwane Metropolitan Municipality. The Employer is seen as the Client, for whom construction work is performed.

Engineer: A competent person appointed by the employer to design, supervise and monitor construction on their behalf.

Site: The area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor, and approved for such use by the Engineer.

3. DESCRIPTION OF WORKS

Refer to Part C8 Section C7 (page 1), in the Tender Document, for a detailed description of the works.

4. SPECIAL WARNINGS

Apart from the normal risks associated with the works, attention is drawn to the following elements that pose additional health and safety risks:

Dolomitic conditions exist on site;

Gas will be encountered in sewer lines;

Working adjacent to/within roads; and

Live services (i.e. Eskom, Telkom, gas/petrol, rail, water, sanitation and roads) are to be crossed.

Contractors are to include the above mentioned in the risk assessment (refer to **Section 6.3**).

5. OHS RESPONSIBILITIES

5.1 The Employer's Responsibilities

In terms of Regulation 4 of the Construction Regulations the **Client** (i.e. The Employer) is responsible for *inter alia* the following:

Preparing a documented **Health and Safety Specification** for the construction work, and provide any principal contractor who is making a bid or appointed to perform construction work for the client with the same;

Taking reasonable steps to ensure that each principal contractor's **health and safety plan** is implemented and maintained on the construction site: Provided that the steps taken shall include periodic audits at intervals mutually agreed upon between the client and principal contractor, but at least once every month;

Ensuring that potential principal contractors submitting tenders, have made provision for the cost of health and safety measures during the construction process;

Discussing and negotiating with the principal contractor the contents of the health and safety plan and thereafter finally approve the health and safety plan for implementation; and ensuring that a copy of the principal contractor's health and safety plan is available on request to an employee, inspector or contractor.

A client may appoint an agent in writing to act as his or her representative and where such an appointment is made, the responsibilities as are imposed by the Construction Regulations upon a client, shall as far as reasonably practicable apply to the agent so appointed.

5.2 The Contractor(s) Responsibilities

In terms of Regulation 5 of the Construction Regulations the **Principal Contractor** and **Contractor** are responsible for *inter alia* the following:

Providing and demonstrating to the client a suitable and sufficiently documented health and safety plan, based on the client's documented health and safety specifications contemplated in Regulation 4 (1) (a), which shall be applied from the date of commencement of and for the duration of the construction work.

Contractors who are making a bid for construction work are required to make provision for the cost of health and safety requirements set out in these specifications and in the OHSACT and accompanying Regulations. In addition, the aforesaid Contractors shall submit a declaration indicating that they have the necessary competencies and resources to carry out the work safely.

Note that compliance to these Health and Safety Specifications does not absolve the Contractor to comply with the minimum legal requirements in terms of the OHSACT, Construction Regulations or any other applicable Regulations or amendments thereto.

6. GENERAL HEALTH AND SAFETY PROVISIONS

This section of the document provides the general health and safety requirements imposed on the Contractor for the construction work to be performed. Note that although these provisions do not provide an all-inclusive interpretation and repetition of the applicable sections of the OHSACT and accompanying Regulations, the Contractor is obligated to comply with the aforementioned legislation in full.

6.1 Appointments

The following appointments (where applicable), as required by the Occupational Health and Safety Act, General Safety Regulations and Construction Regulations, will be made in writing by the Contractor:

- Safety Officer (Regulation 6);
- Safety Representative (OHS Act 17);
- First Aid Attendant (General safety regulations 3)
- Construction Supervisor (Regulation 6);
- Risk assessment (Regulation 7);
- Fall protection (Regulation 8);
- Structures (Regulation 9);
- Formwork and support work (Regulation 10);
- Excavation work (Regulation 11);
- Demolition work (Regulation 12);
- Tunnelling (Regulation 13);
- Scaffolding work (Regulation 14);
- Suspended platform operations (Regulation 15);
- Boatswain chairs (Regulation 16);
- Material Hoists (Regulation 17);
- Batch plant operations (Regulation 18);
- Explosive powered tools (Regulation 19)
- Cranes (Regulation 20);
- Construction vehicle and mobile plant (Regulation 21(1));
- Electrical installation and machinery on construction site (Regulation 22);
- Use of temporary storage of flammable liquids on construction site (Regulation 23);
- Water environments (Regulation 24);
- Housekeeping on construction sites (Regulation 25)
- Stacking and storage on construction sites (Regulation 26);
- Fire precautions on construction sites (Regulation 27); and
- Construction welfare facilities (Regulation 28).

The Contractor shall ensure that the employees appointed in the above positions are competent. An organogram with the candidates to be appointed in the above positions must be included in the Health and Safety Plan and submitted to the employer.

All persons appointed in the above-mentioned positions must complete a register for each appointment. Details for the frequency of completion of each register are included in **Table 1** below.

Table 1: Register Frequency

Supervisor	Completion Frequency	Reporting Medium
Safety Officer	On-going	Monthly Safety Report
H&S Representative	Monthly	Register
Risk Assessor	On-going	Continuous R.A. form
Fall Protection Supervisor	Daily	Register
Formwork and Support work Supervisor	Daily	Register
Excavation Supervisor	Daily	Register
Demolition Supervisor	Daily	Register
Tunnelling Supervisor	Daily	Register
Scaffolding Supervisor	Daily	Register
Portable Electrical Equipment Inspector	Daily	Register
Explosive Powered Tool Inspector	Daily	Register
Construction Vehicle and Mobile Plant Inspector	Daily	Register
Ladder Inspector	Monthly	Register
Hand tool inspector	Weekly	Register
Fire Equipment Inspector	Monthly	Register
First Aid Attendant	Weekly	Inventory Register
Stacking and storage supervisor	On-going	Register
Ablution Facilities (Safety Officer)	Weekly	Register
Welding supervisor	Daily	Register

All registers must be kept in the Health and Safety file on site.

6.2 Notification of Commencement of Construction Work

(Construction Regulations, Regulation 3)

The Contractor shall prior to carrying out the construction work notify the Provincial Director of the Department of Labor in writing if the following work is involved:

- the demolition of structures and dismantling of fixed plant of height of 3,0 m or more;
- the use of explosives;
- construction work that will exceed 30 days or 300 person-days;
- excavation work deeper than 1,0 m; or

- working at a height greater than 3,0 m above ground or landings.

The notification must be done in the form of the pro forma included as **Annexure A** to these specifications.

The address details of the provincial director are as follows:

The Provincial Director: Gauteng South

Department of Labor

P.O. Box 4560

JOHANNESBURG

2000

A copy of the notification form must be kept on site, available for inspection by inspectors, The Employer, The Employer's Agent or employees.

6.3 Risk Assessment

(Construction Regulations, Regulation 7)

The Contractor shall before the commencement of any construction work and during construction work, cause a risk assessment to be performed by a competent person (appointed in writing). The risk assessment shall form part of the health and safety plan to be applied on the site and shall include at least—

- (a) the identification of the risks and hazards to which persons may be exposed to;
- (b) the analysis and evaluation of the risks and hazards identified;
- (c) a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- (d) a monitoring plan; and
- (e) a review plan.

In order to ensure compliance with the Construction Regulations the Contractor will be required to undertake three forms of risk assessments, namely:

1) Baseline risk assessment:

Before the undertaking of construction work the Contractor is required to undertake a risk assessment. The baseline risk assessment will be included in the Health and Safety Plan. The baseline risk assessment must include any risk or hazard that people, vehicle, machinery and facilities may be exposed too during construction. Mitigation measures for the identified risks must be defined during the assessment. The baseline risk assessment and mitigation measures must be periodically reviewed during the construction work to ensure that it remains relevant.

2) Issue based risk assessments:

If methods and procedures are varied during the construction period, the Contractor will be required to undertake a separate risk assessment. Examples of when a separate risk assessment will be undertaken are as follows:

- New machinery is brought onto site,

- Incidents or near misses occur,
- Designs or layouts are amended, or
- Type of work changes.

3) Continuous risk assessment:

In order to maintain a safe and risk free environment continuous risk assessments must be undertaken. This may be in the form of regular audits, general risk awareness and risk assessments prior to the commencement of work.

After all risks have been identified, the Contractor is required to analyse the risks identified by determining the risk probability, severity and frequency. This is done by using the risk matrix, as shown in **Figure 1**.

		Severity					
		6	4	2	0		
Probability	6	18	16	14	12	6	Frequency
	4	16	12	10	8	4	
	2	10	8	6	4	2	
	0	6	4	2	0	0	

A		B		C		D	
Probability an accident may occur		Severity		Hazard Frequency		Risk Score / Criticality	
6	Inevitable	6	Fatal and Permanent Dis.	6	Arises every shift	14 to 18	High Risk
4	Probable	4	DLTI (50 000 - 499 999)	4	Arises every week	8 to 13	Medium Risk
2	Highly improbable	2	Medical Case (10 000 - 49 999)	2	Arises every month	0 to 7	Low risk
0	No injury / loss	0	First Aid Case	0	Arises every year		

Figure 1: Risk Matrix and Scoring System

The Contractor may use an alternative risk matrix provided that it is approved as part of the Health and Safety Plan.

The person or group of people appointed to undertake the risk assessment must be competent. This means that the person must have the knowledge, training, experience and qualifications specific to the work or task being performed.

Site specific risks:

As a minimum, the following site-specific risks must be taken into account when undertaking the risk assessment;

The occurrence of pipe jacking along sections of the pipeline. At minimum the following risks need to be taken into account:

- Work in confined space,
- Gas detection,
- Ventilation,
- Possible collapsing of tunnel,
- Fire, etc

This is seen as a tunnelling activity and the Contractor must comply with the Tunnelling Regulations under the Mine Health and Safety Act, 1996 (Act 29 of 1996).

During trench excavation (Construction Regulations, regulation 11), take into account whether shoring, bracing or sloping of trench walls will be required. Include associated risks when working in or around deep trenches. The contractor must provide detailed information regarding the methods to be used for the safeguarding of excavations as well as the area surrounding such excavations.

Backfilling and compaction of trenches, this includes the preparation of bedding. Ensure all persons operating machinery are adequately trained. Proof of training of persons operating equipment to be kept on site.

Risks associated with the laying of metal pipes and welding of pipes. Be aware that during welding gas is released and in confined space this has the potential to ignite. Welding also generates and intense heat which can result in employees suffering from heat stress or heat stroke.

Be aware of all existing live services that may cross the path of the pipeline. Not all these existing services may be known or plotted on the layout map.

Associated risks working next to/within roads.

Risks related to working in residential and commercial areas.

Security risks.

Any other risks associated with the project.

Ensure that safe work and emergency procedures are prepared for all identified risks.

6.4 Sub-contractors

(Construction Regulations, Regulation 5)

In accordance with Regulation 5 (3), a Principal Contractor shall undertake *inter alia* the following with regard to sub-contractors:

- (a) Provide any contractor who is making a bid or appointed to perform construction work for the principal contractor, with the relevant sections of the Health and Safety Specifications contemplated in Regulation 4 (1) (a);
- (b) Take reasonable steps to ensure that each contractor's health and safety plan contemplated in subregulation (4) is implemented and maintained on the construction site: Provided that the steps taken shall include periodic audits at intervals mutually agreed upon between the principal contractor and contractor(s), but at least once every month;
- (c) Stop any contractor from executing construction work, which is not in accordance with, the principal contractor's and/or contractor's health and safety plan for the site or which poses a threat to the health and safety of persons;
- (d) Ensure that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on site; and
- (e) Ensure that potential contractors submitting tenders have made provision for the cost of health and safety measures during the construction process.

6.5 Copy of OHSACT

(General Administrative Regulations, Regulation 4)

Each employer with 5 or more employees shall have a copy of the OHSACT and relevant Regulations and Basic Employment Act, which will be made readily available for perusal by the employees.

6.6 Personal Safety Equipment and Facilities

(General Safety Regulations, Regulation 2)

For those situations or conditions which cannot be prevented or safeguarded, the Contractor shall take steps to reduce the risk as much as is practicable, and shall provide free of charge and maintain in a good and clean condition such safety equipment and facilities as may be necessary to ensure that any person exposed to any such condition or situation at a workplace or in the course of his employment or on premises where machinery is used is rendered safe.

6.7 First aid, emergency equipment and procedures

(General Safety Regulations, Regulation 2)

In case of injury or emergency, the Contractor shall take all reasonable steps that are necessary under the circumstances, to ensure that persons at work receive prompt first aid treatment.

The Contractor shall, in the instance where more than five employees are employed at the site, provide a first aid box or boxes at or near the workplace, which shall be available and accessible.

The first aid box shall contain suitable first aid equipment, which includes at least the equipment listed in the Annexure of the General Safety Regulations.

Where more than 10 employees are employed at the site, the Contractor shall take steps to ensure that for every group of up to 50 employees at the site; at least one person is readily available during normal working hours, which is in possession of a valid certificate of competency in first aid.

6.8 Work in Elevated Positions

(General Safety Regulations, Regulation 6)

Work in an elevated position shall only take place if it is performed safely from a ladder or scaffolding, or from a position where such person has been made as safe as if he were working from scaffolding.

6.9 Letter of Good Standing

(Construction Regulations, Regulation 4(g))

The Contractor shall provide a letter of good standing with the compensation fund or with a licensed compensation insurer to The Employer, prior to work commencing on site.

6.10 Excavation Work

(Construction Regulations, Regulation 11)

The Contractor shall ensure that all excavation work is carried out in a safe manner, and to this end will undertake the necessary steps to ensure inspection, stabilisation, identification of existing services, and provision of access is adequately catered for. The excavation supervisor will inspect excavations:

- daily (prior to each shift);
- after every blasting operation;
- after an unexpected fall of ground;
- after substantial damage to supports; and
- after rain,

and will complete the excavation register, as contained in **Annexure B**.

The Contractor shall cause every excavation that is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be adequately protected by a barrier or fence of at least one metre in height and as close to the excavation as is practicable. In addition, these excavations shall be provided with clearly visible boundary indicators at night.

The Contractor shall erect warning signs next to an excavation within which persons are working or carrying out inspections or tests.

6.11 Construction Vehicles and Mobile Plant

(Construction Regulations, Regulation 21)

The Contractor shall ensure that all construction vehicles and mobile plants are kept, used, maintained and inspected as required by Regulation 21 of the Construction Regulations, so as to protect the health and safety of the Contractor's employees and the public, and to ensure proper care of the plant and vehicles.

Moreover, in accordance with Regulation 21 (2) of the Construction Regulations, the following shall apply:

“(2) A contractor shall furthermore ensure that:

no person rides or be required or permitted to ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;”

To ensure such a “safe place” for the transport of employees the following must be provided:

Proper seating for employees and protection from the elements;

Barricading to create a safe barrier between employees and material when they are transported on the same vehicle; and

Proper means to secure material on the back of the vehicle especially when material and persons are transported together.

It is advised that Contractors:

1. identify the shortcomings of construction vehicles in use and ensure compliance to the requirements of the regulations as soon as is reasonably practicable;
2. ensure that new vehicles purchased for use as construction vehicles comply with the requirements or have the necessary alterations made before commissioning of the vehicles; and

3. ensure that all vehicles leased for the purpose of performing construction work and the transport of employees comply with the requirements of the said regulations.

6.12 Water Environments

(Construction Regulations, Regulation 24)

The Contractor shall ensure that where construction work is done over or in close proximity to water, provision is made for —

- (a) preventing workers from falling into water; and
- the rescuing of workers in danger of drowning.

Where a worker is exposed to the risk of drowning by falling into the water, the Contractor shall ensure that a lifejacket is provided to and worn by the worker.

6.13 Stacking and storage on construction sites

(Construction Regulations, Regulation 26)

The Contractor shall ensure that adequate, demarcated storage areas are provided. In addition, these areas shall be kept neat and under control.

6.14 Occupational Health and Safety Signage

(General Safety Regulations as amended)

The Contractor shall ensure that the necessary signage is displayed, as is required by the OHSACT and the accompanying Regulations. The signage shall be placed at all entrances to the site and at strategic points on the site.

6.15 Health and Safety File

(Construction Regulations, Regulation 5 (7) & (8))

The Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of the OHSACT and the accompanying Regulations, is opened and kept on site and made available to an inspector, The Employer, The Employer's Agent or Principal Contractor upon request.

At minimum, the following must be included in the Health and Safety file;

- Health and Safety Plan,
- Proof of notification of the Department of Labor,
- Letter of good standing from the compensation insurer,
- Appointment letters,
- First aider's certificate,
- Proof of training,
- Risk Assessments,
- Registers,
- Proof of induction,
- PPE records,
- Method Statements,

- Construction designs and alterations, and
- Specifications of materials used.

The Contractor shall hand over a consolidated Health & Safety File to The Employer on completion of the construction work.

6.16 Induction and Training

(Construction Regulations, Regulation 7)

The Contractor shall ensure that all employees are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment. Further, the Contractor shall ensure that all sub-contractors are informed regarding the hazards, before work commences.

The Contractor shall not allow any employee to enter the site unless that employee has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

The Contractor shall ensure that all visitors to the site undergo health and safety instruction pertaining to the hazards prevalent on the site and shall be provided with the necessary personal protective equipment: Provided that where visits are made only to the site office which is not in direct contact with the construction work activities, those health and safety instructions and the provision of personal protective equipment may not apply.

6.17 Reporting of Incidents and Occupational Diseases

(General Administrative Regulations, Regulation 8 & 9)

The Contractor shall ensure that, where necessary, accidents and incidents are reported to the Department of Labor. This must be done by completing Annexure 1 of the General Administrative Regulations (2003).

The Contractor must investigate all incidents and a formal incident investigation report must be submitted to The Employer within 7 working days of the incident occurring. The Employer has the right to request an external investigation into the incident.

6.18 Lifting equipment

(Driven Machinery Regulations, Regulation 18)

The Contractor shall ensure that lifting machines and lifting tackles are used in accordance with Regulation 18 of the Driven Machinery Regulations.

The Contractor shall ensure that all lifting equipment and tackle is clearly marked, indicating the safe working load of the equipment. Lifting tackle shall be registered in a system and signed off on a daily basis by a competent person after inspection of the equipment.

6.19 Emergency Plan

Prior to commencement on site, the Contractor shall submit a detailed Emergency Procedure for approval by The Employer. The Emergency Procedure shall account for the potential emergency situations that may occur on site.

The purpose of the Emergency Procedure includes:

- To generate, enforce and give effect to rules or guidelines that protect human health and property;

- To provide for efficient reaction to emergency situations; and
- To designate key personnel to participate in the emergency procedure.

The Emergency Procedure shall include a list of emergency telephone numbers (Fire Department, Ambulance, Police, Hospital, Services, etc.), which is kept and clearly displayed at the site.

6.20 Monthly Health and Safety Compliance Audit

The Contractor and the Health and Safety file must be made available for monthly auditing by the client or client's Safety Agent. This is to ensure that the approved Health and Safety Plan is being implemented and maintained.

6.21 Monthly Report and Site meeting

The Contractor will use the monthly site meeting as a platform to report on all Health and Safety Issues. The Contractor will ensure that the most senior manager attends all Health and Safety Meetings with the Client. During the monthly site meeting, the Contractor will submit a monthly safety report as shown in **Annexure C**.

7.1 ANNEXURE A: REGULATION 3 OF THE CONSTRUCTION REGULATIONS, 2003

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993

NOTIFICATION OF CONSTRUCTION WORK

1. (a) Name and postal address of principal contractor:

.....
.....

- (b) Name and telephone numbers of principal contractor's contact person:

.....
.....

2. Principal contractor's compensation registration number:

.....

3. (a) Name and postal address of client:

.....
.....

- (b) Name and telephone number of client's contact person or agent:

.....
.....

4. (a) Name and postal address of designer(s) for the project:

.....
.....

- (b) Name and telephone number of designer's contact person:

.....

.....
5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of Regulations 6 (1):

.....
6. Name/s of principal contractor's subordinate supervisors on site appointed in terms of Regulation 6 (2):

.....
7. Exact physical address of the construction site or site office:

.....
8. Nature of the construction work:

.....
9. Expected Commencement Date:

10. Expected Completion Date:

11. Estimated maximum number of persons on the construction site:

.....
12. Planned number of contractors on the construction site accountable to principal contractor:

.....
13. Name(s) of contractors already chosen:

.....
Principal Contractor

.....
Date

.....
Client

.....
Date

DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.

ALL PRINCIPAL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK

7.2 ANNEXURE B: EXCAVATION REGISTER

7.3 ANNEXURE C: MONTHLY SAFETY REPORT

INJURIES

State whether any injuries occurred during the last month. If an injury did occur, state the severity and how injury occurred. Provide a method statement detailing how the accident/injury will be prevented in the future.

NEAR MISSES

State whether any near misses occurred during the last month. If a near miss did occur, provide a method statement of how this will be avoided in the future.

INDUCTION STATUS

Give status of induction for all employees.

STATUS OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

State whether all employees have received PPE and whether the employees using the PPE as required.

NEWLY IDENTIFIED RISKS

Provide details of any new risks on site and provide safe work procedures for these newly identified risks.

APPOINTED PERSONS

Status of appointments: Are all appointed persons giving the appropriate time and attention to the job for which they have been appointed?

STATUS OF REGISTERS

Are all registers being completed as required?

FINDINGS FROM LAST AUDIT AND WAY FORWARD

Provide details of the last audit by the Client or Agent and give details of how these issues will be addressed.

EMPLOYEES

Discuss any comments or requests regarding Health and Safety raised by the employees.

OTHER

Discuss any other issues regarding Health and Safety.

.....

SIGNATURE

.....

DATE

7.4 ANNEXURE D: OHS HAZARD IDENTIFICATION AND RISK ASSESSMENT

The management of the OHS Programme is aimed at eliminating risks from the system and where that is impossible minimizing risk. The main safety hazards have been identified as follows:

- Opening manholes and other equipment
- Getting into manholes and other openings
- Climbing out of manholes and other openings
- Closing manholes and other access points
- Working in or close to roads or walkways
- Working with high pressure water, gas, etc
- Driving on public roads
- Button spiders and snakes in manholes and other access points
- Gasses in lines and other work stations

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 Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE:

DATE:

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

SECTION 4:
OCCUPATIONAL HEALTH AND SAFETY
CONSIDERATIONS AND AGREEMENT

SECTION 4.3:
HEALTH AND SAFETY PLAN

SECTION 4.3: HEALTH AND SAFETY PLAN

FALL PROTECTION

In addition to the requirements of this regulation (CR 8) the following shall apply:

- The fall protection plan is to be prepared by a competent person. This competent person must sign the fall protection plan.
- Contents of the fall protection plan must cover all the requirements as stated in sub regulation CR 8.
- The fall protection plan is to be handed to the agent/engineer/City of Tshwane before work commences.
- The level of supervision is to be stated in the fall protection plan.
- Medical certificates, work near edges, presence of dew, dangerous walking areas etc should be addressed in the fall protection plan.

REGISTERS

- Examples of the registers listed below must be provided in the Health and Safety Plan.
- All registers must be available at the site offices at all times for inspection by the agent.
- The list of registers to be kept is by no means exhaustive and the H&S Plan should list all the registers that are applicable and at what frequency they are going to be maintained.

ACTIVITY	FREQUENCY	FORMAT
Form work / Support work	Daily, prior to any shift	
Excavation Work	Daily, prior to any shift, after rain or blasting or after unexpected fall of ground	
Material Hoist	Daily	
Explosive Powered Tools	Daily Before Use	
Crane(s) Logbook	As per DMR 18	
Construction Vehicles and Mobile Plant	Daily	
Temporary Electrical Installation	Weekly	
Stacking	Weekly	
Fire Extinguishers	Bi – Monthly	
Ablution Facilities	Weekly	
Ladders	Weekly	
Incident Register in terms of GAR 9	As Required	Annex 1 of GAR
Fall Protection Equipment	Daily	
Portable electrical tools	Weekly	
Suspended Platforms	Daily	
Fire fighting equipment	Monthly	

GENERAL REQUIREMENTS

• Personal Protective Equipment/Clothing

The procedures for issuing and control over PPE shall be indicated in the Health and Safety Plan, as well as the enforcement for the wearing thereof.

• Hired Plant

The responsibility for the safe condition and use of all hired plant shall be that of the contractor.

• Transport of Employees

Transport of employees shall be carried out in terms of the National Road Ordinances and the OHS Act - Construction Regulations.

The Health and Safety Plan shall detail the arrangements and methods of the transportation of workers.

• Signs

The Principal Contractor shall indicate in his Health and Safety Plan the arrangements regarding the posting of danger signs.

• Certificates of fitness

The Principal Contractor shall include in his H&S Plan copies of medical fitness certificates for the following:

- Crane Operators
- Construction vehicles and Mobile plant operators
- Any other medical certificates that might be applicable in terms of the other regulations governing health & safety of construction personnel such as HCS regulations and Noise induced hearing loss etc.

WORK PERMIT

- A work permit is required for all work to be done by contractors or any person on electrical machinery or in live chambers and prohibited areas at any point of the power system.
- An authorized person will issue all permits for equipment/machinery on which switching/connections must be done. The permits of all equipment/machinery for which the Electricity Division is responsible will be requested by the person wanting to do the work; request can be made via Project Manager City of Tshwane and optioned at Capital Park power system control.
- After the work has been completed, the work permit must be returned to an authorized person or the Control Officer

CLEARANCES

- 400-3 500 V Person to live equipment 300 mm
- 11 000 V Person to live equipment 600 mm
- 33 000 V Person to live equipment 900 mm
- 66 000 V Person to live equipment 1,2 m
- 88 000 V Person to live equipment 1,5 m
- 132 000 V Person to live equipment 2,3 m
- 165 000 V Person to live equipment 3,3 m
- 220 000 V Person to live equipment 3,8 m
- 275 000 V Person to live equipment 4,2 m
- 380 000 V Person to live equipment 4,5 m

INCIDENT REPORTING

All incidents occurred while the contractor is doing work must be reported to City of Tshwane Project Manager.

SECTION 4:
OCCUPATIONAL HEALTH AND SAFETY
CONSIDERATIONS AND AGREEMENT

SECTION 4.4: REFERENCES TO THE SCOPE OF WORKS
IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY
ACT AND REGULATIONS: HEALTH AND SAFETY
SPECIFICATION

REFERENCES TO THE SCOPE OF WORKS IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS: HEALTH AND SAFETY SPECIFICATION

General Notification

This document forms an integral part of the tender document and, in particular, shall constitute the Client's (City of Tshwane.) Occupational Health & Safety Specification, as required by the Construction Regulations, 2014, as promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993).

This 'Health and Safety Specifications' document is governed by the "Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), hereinafter referred to as 'The Act'. Notwithstanding this, cognizance should be taken of the fact that no single Act or its set of Regulations can be read in isolation. Furthermore, although the definition of Health and Safety Specifications stipulates 'a documented specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons', it is required that the entire scope of the Labor legislation, including the Basic Conditions of Employment Act be considered as part of the legal compliance system. With reference to this specification document this requirement is limited to all health and safety issues pertaining to the site of the project as referred to here-in. Despite the foregoing it is reiterated that environmental management shall receive due attention.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change even on a daily basis. Therefore, due caution is to be taken by the Principal Contractor when drafting the Health and Safety Plan based on these Health and Safety Specifications. Prior to drafting the Health and Safety Plan, and in consideration of the information contained here-in, the contractor shall set up a Risk Assessment Program to identify and determine the scope and details of any risk associated with any hazard at the construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard. This Risk Assessment and the steps identified will be the basis or point of departure for the Health and Safety Plan. The Health and Safety Plan shall include documented 'Methods of Statement' (see definitions under Construction Regulations) detailing the key activities to be performed in order to reduce as far as practicable, the hazards identified in the Risk Assessment.

1. Definition of Terms

- I. Client-Means any person for whom construction work is performed and or undertaken (City of Tshwane for the purposes of this project)
- II. Construction site means a workplace where a construction work is being performed
- III. Construction supervisor means a competent person responsible for supervising construction activities on a construction site.
- IV. Competent person means a person who –
 - a) Has in respect of the work or task to be performed the required knowledge, training and experience and where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provision of the National Qualification Framework Act 2000 (Act 67 of 2000), those qualifications and that training must be regarded as the required qualification and training and
 - b) Is familiar with the Act.
- V. Principal Contractor-Means an employer, as defined by Section 1 of the OHSACT who performs construction work and is appointed by the client to be in overall control and management of the construction site and works
- VI. Agent-Means a competent person who acts as a representative for a client in this case MIH Projects.
- VII. Occupational Health and Safety Specification- Means a documented specification of all Health and Safety requirements pertaining to the associated works on a construction site so as to ensure the health and safety of persons working ,visiting, passing, staying and working close to the construction site and or other applicable areas such as the site camp
- VIII. Risk-means the probability that injury or damage may occur
- IX. Hazard-means a source of or exposure to danger

2. Introduction

In terms of the Construction Regulation 5 (1) of the OHS ACT, the client is required to compile an Occupational Health and Safety Specification for an intended project. This specification has an objective to ensure that the principal contractor entering into a contract with the client achieves and maintain an acceptable level of Occupational Health and Safety performance and compliance.

This document forms an integral part of the contract between the client and the principal contractor.

The Principal Contractor and its Contractors shall furthermore implement any reasonable practicable means to ensure compliance to this Occupational Health and Safety Specification and any other applicable legislation on their organization and/or activities performed by or for them

Compliance with this document does not absolve the principal contractor from complying with any other minimum legal requirement and the principal contractor remains responsible for the health and safety of his employees, those of his mandatories as well as any person coming on site or on adjacent properties as far as it relates to the construction activities

3. The Client's commitment to Occupational Health and Safety Management

City of Tshwane is committed to responsible occupational health, safety management. This commitment is essential to protect the environment, employees, mandatories, visitors and provide a work environment conducive to health and safety. Principal Contractors and their Contractors shall demonstrate their commitment and concern by:

- Ensuring that decisions and practices affecting occupational health and safety performance are consistent with the issued specification;
- Ensuring adequate resources are made available for the effective implementation of occupational health and safety control and mitigation measures;
- Participating in hazard identification and risk assessments and design safety reviews;
- Communicating occupational health and safety management processes, strategies and control measures with all levels of employees, contractor and/or visitors;
- Ensuring visible leadership at all sites;
- Promoting and enforcing the use of correct types of Personal Protective Equipment (PPE);
- Reporting and investigation of incidents and accidents and ensuring actions are identified and implemented to prevent similar types of incidents reoccurring;
- Participating in Client audits and meetings and ensuring required actions are implemented within reasonable time frames on the site/project;
- Recognizing and commending safe work practices and coaching employees who require guidance;
- Applying and enforcing consequence management from deviations and transgressions off/from compliance to this OHS Specification noted and/or observed, where applicable;
- Carrying out safety observations, implement corrective and preventative actions and giving immediate feedback;
- Encouraging employee participation in the formulation of work instructions and safety rules.

4. Scope

This project specific Occupational Health and Safety Specification will cover and address reasonable and foreseeable, risks, exposures and aspects of Occupational Health and Safety as affected by the activities of **THE SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING AND REPAIR OF FIBRE INCLUSIVE OF OPTICAL GROUNDWIRE (OPGW) ON 132kV POWER LINES IN THE TSHWANE REGION.**

The specification will provide the requirements that the principal contractor and other contractors will have to comply with in order to reduce the risk associated with the above mentioned contract work and that may lead to incidents causing injury and/or ill health to a level as low as reasonable practicable and possible.

5. Omissions from OHS Specification

Where any omission from the OHS Specification is identified, applicable legal requirements will constitute the minimum standard for compliance to the relevant omission. The responsibility will be on the Principal Contractor to provide assurance to the client (City of Tshwane) on compliance to the applicable legal requirements related to the activity / task / process.

6. Change or Review of Specifications

Whenever the client (City of Tshwane) identifies the need to change or review the OHS Specification, approved changes and revisions will be communicated to the Principal Contractor. A cost analysis on the implementation of the proposed changes / revisions will be calculated through a collaborative processes between the Client and the Principal Contractor – where the approved changes and/or revisions has no cost implication for the Principal Contractor the Principal Contractor will be required to accept the approved changes / revisions and ensure implementation within the OHS Plan .

7. Safety Files

7.1 Preparation and Submission of safety file

The Principal Contractor shall prepare a safety file containing the processes / procedures and templates to be applied during the project period for the scope of work. The Principal Contractor will be evaluated during the contract period against the submitted safety file.

At a minimum the safety file shall contain the following documentation and in accordance with the specification:

1. Notification of construction work to the relevant Department of Labor (stamped on each page / no faxed copies);
2. Scope of work to be performed;
3. Public Liability
4. Personnel list (Principal Contractor employees);
5. OH&S Policy and other procedures;
6. Updated copy of the Occupational Health and Safety Act (Act no. 85 of 1993) and its Regulations.

7. Updated copy of the Compensation for Occupational Injuries and Diseases Act (Act no. 130 of 1993) and its Regulations;
8. Proof of valid registration and good standing with the Compensation Commissioner or another licensed Insurer;
9. OHS Plan approved by the Client.
10. Agreement with Mandatory in terms of Section 37(1) & 2 of the OHS Act.
11. Approved risk assessments, review and monitoring plans and safe work procedures (method statements);
12. A list of sub-contractors (if applicable) including copies of the agreements between the parties and the type of work being done by each contractor;
13. Designs and/or drawings;
14. All written designations and appointments for project scope of work (CV and competency copies);
15. Management structure (inclusive of OH&S responsibility & meeting structure);
16. Induction training and site OHS rules;
17. Occupational health and safety training matrix / plan;
18. Arrangements with contractors and/or mandatories;
19. The following registers (as applicable to contract scope of work):
 - Accident and/or incident notifications, investigation & control register;
 - Occupational health and safety representatives' inspection register;
 - Construction vehicles and mobile plant inspections;
 - Daily inspections templates of vehicles, plant and other equipment by the operator, driver and/or user;
 - Daily inspections templates of excavations by competent person;
 - Template for entry into confined space;
 - Toolbox talks pro-forma;
 - Designer's inspections and structures record template;
 - Inspection and maintenance template of explosive powered tools;
 - Inspection template of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
 - Fall protection inspections template;
 - First-aid box content template;
 - Record of first-aid treatment template;
 - Fire equipment inspection and maintenance template;
 - Record of hazardous chemical substances template kept and used on site;
 - Ladder inspection template;
 - Machine safety inspections template (including machine guards, lock-outs etcetera);
 - Inspection templates for lifting machines and –tackle (including daily inspections by drivers/operators);
 - Inspection templates of stacking and storage;
 - Inspections templates of structures;

- Inspections templates of vessels under pressure;
- Templates of issuing of Personal Protective Equipment;
- Monthly reporting and recording of incident statistics templates;
- Keeping of any other record in terms of applicable legislation falling within the scope of OHS Legislation applicable to the project and the Principal Contractor / Contractor's activities and organization.
- Emergency preparedness and response programs;

7.2 Evaluation and approval of Safety file

The client (City of Tshwane) will conduct an initial inspection and evaluation of the Principal Contractor's OHS file for approval purposes to commence work. The Principal Contractor is required to submit the OHS file within 5 days after receiving the induction training from the Client. The Client will evaluate the file and give feedback to the Project manager and the Principal contractor. If the file has not been approved, the Principal contractor shall ensure that the outstanding documents are submitted for re-evaluation within 3 working days.

NOTE: The construction work cannot commence until the safety file is approved. The approval letter from the Client must be kept in the OHS file and any letter issued concerning the evaluation of the file. Principal Contractors are required to achieve at least 80% (Eighty Per cent) compliance on the entire safety file documentation to obtain approval by the Client.

7.3 Principal Contractor engagement phase

The Principal Contractor shall commence with the construction work after approval of the safety file. The following processes will be applied to the Principal Contractors on a monthly basis for the duration of the contractual period:

- Monthly Compliance Assessments;
- Site Inspections;
- Progress meetings;
- Contractor's forum OHS meetings held at City of Tshwane

An initial site establishment inspection will be conducted by the Client after approval of the safety file / plan.

7.4 Project close-out and submission of consolidated Health & Safety File

On completion of a construction work/ project the Principal Contractor shall submit all documentation required for the consolidated safety file to City of Tshwane as part of the project hand over documentation.

At a minimum, the safety file will contain the following records:

1. Approval letter by City of Tshwane on contents of Health and Safety file including plan;
2. A construction work permit issued by the Department of Labor as contemplated in Construction Regulation 3 of the Construction Regulations 2014 (when applicable).
3. Scope of work performed;
4. OHS Policy and other procedures;

5. Proof of registration and good standing with the Compensation Commissioner or another licensed Insurer;
6. OHS plan approved by the Client including the underpinning risk assessment(s) and method statements;
7. A list of contractors (sub-contractors) including copies of the agreements between the parties and the type of work done by each contractor;
8. Notifications of new projects /extension of scope received;
9. Designs and/or drawings;
10. Occupational health and safety committee meeting agenda and minutes;
11. Copies of written designations and appointments (CV and competency copies);
12. Management structure (inclusive of OHS responsibility & meeting structure);
13. Induction training conducted and site OHS rules;
14. Occupational health and safety training provided;
15. Arrangements with contractors and/or mandatories;
16. Description of security measures;
17. All applicable registers:

8. OHS Specification Requirements

8.1 General Requirements of Health and Safety Plan

Construction Regulation 7 (1) stipulates that the principal contractor must provide and demonstrate to the client a suitable sufficiently documented and coherent site specific health and Safety Plan, based on the client's documented Health and Safety Specification contemplated in Regulation 5(1) (b), which plan must be applied from the date of commencement of and for the duration of the construction and which must be reviewed and updated by the principal contractor as work progresses.

It is expected from the Contractor to include in his safety plan method statements on how to accomplish the requirements relating to the Construction Regulations, 2014 and related incorporated standards and regulations.

Principal Contractors should describe how their safety management systems will work and what control procedures they plan on using to ensure safety on the construction site

The following generic aspects should be covered in the Safety plan:

- What administrative procedures the Principal Contractor envisages to use in the implementation and maintenance of the safety plan with reference to the construction site
- How continuous assessment of the safety plan will be assessed and implemented with respect to construction site
- What control systems the Principal Contractor envisages to implement on site to support his safety program

- How the Principal Contractor will ensure that he adheres to the construction regulations in respect of competent persons for appointments
- What external resources the Principal Contractor envisages on using to ensure successful implementation and sustainability of the safety plan
- What training to employees the Principal Contractor envisages and how he would go about to execute it
- The Principal Contractor should indicate which competent persons he plans on employing based on the scope of work.

8.2 Outline of Health and Safety Plan

The Principal Contractor's Health and Safety Plan prepared in accordance with this specification shall consist of at least the following sections and sub-sections:

1. Aim and Scope of Plan,

2. Risk Assessment,

- a. Alternative Forms of Risk Assessment,
- b. Methodology of Risk Assessment,
- c. Elements of Risk Assessment,
 - i. Scope of assessment,
 - ii. Risks Identified,
 - iii. Risk Analysis,
 - iv. Risk Evaluation,
 - v. Risk Treatment (safe working procedures)
 - vi. Monitoring and reviewing

3. Resources,

- a. Health and Safety Staffing Organogram,
- b. Employees,
- c. Subcontractors inclusive of their scope of work and their core resources,
- d. Training,
- e. Plant,
- f. Vehicles,
- g. Equipment

4. Materials,

- a. Temporary Materials
- b. Permanent Materials

5. Categories of Work

6. Implementation of Health and Safety Plan,

- a. Administrative systems,
- b. Training,
- c. Reporting,
- d. Monitoring,
- e. Inspections

7. Auditing,

- a. Internal audits,
- b. Audits by client or Safety agent

8. Emergency procedures and response

8.3 Risk Assessment

8.3.1 General

This section of the specification provides guidelines for the Contractor in preparation of risk assessments in order to ensure compliance with Regulation 9 of the Construction Regulations, 2014. According to SANS 31000:2009, Risk is the overall process of risk identification, risk analysis, and risk evaluation. This section highlights the principles related to the preparation of suitable and sufficient risk assessments. Contractor Staff intending to prepare risk assessments should be trained and suitably experienced in the application envisaged.

A suitable and sufficient risk assessment is an assessment which:

- Accounts for risks that are likely to arise during the construction of the Works,
- Enables the development and implementation of systems to manage the risks,
- Remains valid for a reasonable period of time,
- Provides a basis for training of employees, and
- Improves working procedures and introduce long term controls.

The requirements of the Construction Regulations will not be satisfied by a single risk assessment exercise that holds good for all time. The risk assessment process on the Works is an ongoing process.

The objectives of risk assessments are to:

- Identify the risks that are mostly in need of reduction,
- Identify the various options for achieving such reduction,
- Identify the risks that require careful ongoing management, and
- Identify the nature of the required ongoing attention.

8.3.2 Forms of Risk Assessment

In order to ensure compliance with the Construction Regulations, the Contractor will be required to carry out the following three forms of risk assessment:

i. Activity based risk assessment

The Contractor will be required to carry out activity based risk assessment before the commencement of construction activities on the Works. This risk assessment will form part of the Contractor's Health and Safety Plan. The risks and hazards to which persons, plant, vehicles and facilities may be exposed during the construction of the Works should be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment. The effectiveness of the measures defined and the baseline risk assessment prepared shall be monitored and reviewed from time to time to ensure that it remains relevant and accurate.

ii. Issue based risk assessments

The Contractor will be required to carry out separate risk assessments during construction of the Works when methods and procedures are varied, for example when:

- Designs are amended,
- New machines are introduced,
- Plant is periodically cleaned and maintained,
- Plant is started-up or shut-down,
- Systems of work change or operations alter,
- Incidents or near-misses occur, or
- Technological developments invalidate prior risk assessments

iii. Continuous risk assessments

The Occupational Health and Safety Act specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk free environment on an ongoing basis. This is achieved by continuous risk assessments, the most important form of risk assessment that takes place as an integral part of day-to-day management. Examples of continuous risk assessments include:

- Regular audits,
- Maintaining general hazard awareness,
- Pre-work risk assessment

8.3.3 Methodology for the Preparation of Risk Assessments

The Contractor shall in the preparation of risk assessments, follow the following general principles:

- Appoint in writing a suitably competent risk assessor
- The appointed risk assessor shall lead the risk assessment process
- Provide the team with background data, scope of work, potential hazards and underlying causes, and
- Where necessary employ experts for complex risk assessments and aspects of risk assessments that require experiential judgment,
- Institute an ongoing system of identifying aspects of the work that require risk assessment.

8.3.4 Elements of a Risk Assessment

The process of carrying out a risk assessment consists of a number of well-defined steps. These steps improve decision-making by providing a greater understanding of the risks and their impacts. The main steps or elements of the risk assessment process are as follows:

- 1) Consider scope and nature of risks involved, determine purpose and physical and legal bounds of assessment and define risk evaluating criteria,
- 2) Systematically identify risks,
- 3) Analyze risks with regard to causes, likelihood of occurrence and possible consequences against the background of existing controls and its effectiveness,
- 4) Evaluate risks in terms of pre-established criteria to determine need and priority for attention,
- 5) Treat risks through a process of risk elimination, substitution, controlling risk at source, risk mitigation such as training and as far as risk remains, provide personal protective equipment (PPE),
- 6) Monitor and review progress and performance in terms of management system, and
- 7) Communicate and consult.

The above steps are as depicted in Figure 1, below.

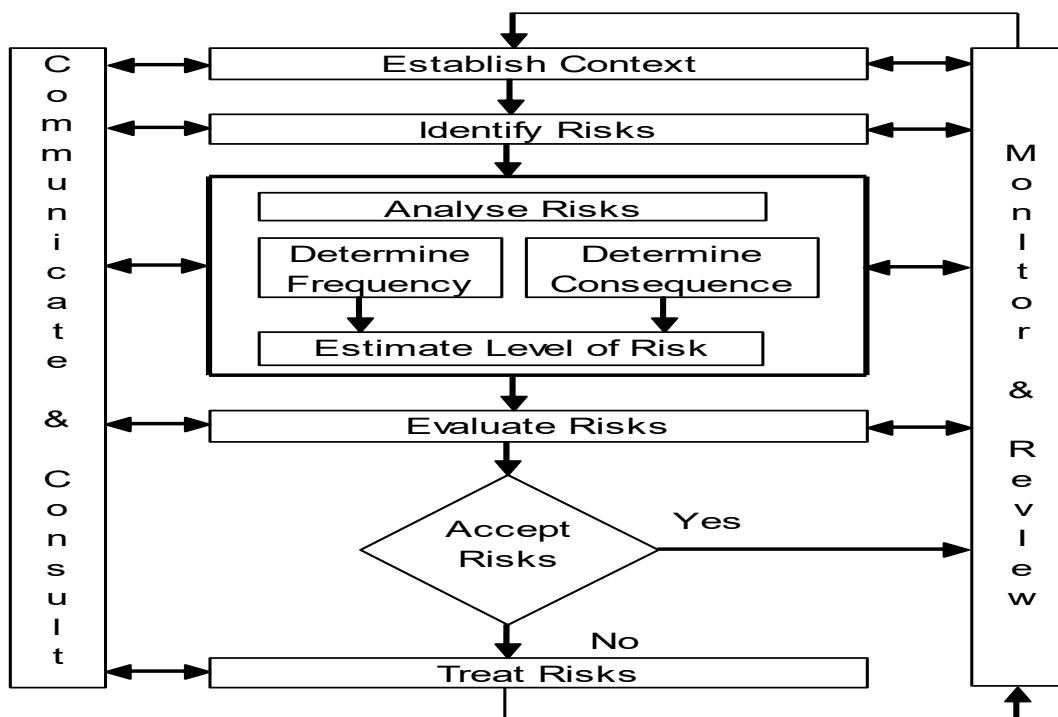


Figure 1: Risk Management Process

The Contractor shall ensure that the risk assessment compiled as part of his Health and Safety Plan contains at least these items.

Refer to Baseline Risk Assessment Annexure 2 of this specification.

i. Risk Identification

The Contractor should regard this step of the risk assessment as the most important. Subsequent analysis and evaluation of risks and the development of risk control measures are wasted if the risks or hazards on the Works are not carefully identified.

The Contractor should bear the following principles in mind when identifying the risks:

- Systematically address all risks or hazards on the Works,
- Review all aspects of the work, but consider only those that have a potential to cause harm,
- Rank the risks identified in order of importance and then use appropriately advanced techniques to deal with major risks,
- Deal mainly with major risks and don't obscure these with unimportant information, especially minor risks,
- Address what actually happens in the workplace during the work activity
- Consider all persons that may be affected,
- Highlight those groups and individuals who may particularly be at risk, and
- Review the adequacy and effectiveness of existing safety controls and measures

ii. Risk Analysis

In this step, the Contractor will be required to analyze the risks identified by determining each risks frequency and magnitude or severity of the consequence of the risk or hazard.

The frequency of occurrence of a hazard may be expressed as the number of times that it may occur in year, decade, lifetime, century, or longer period, according to comparative human experience. The magnitude of the likely consequence of a hazard may be expressed in terms of the degree of incapacitation, number of people or costs involved. The frequency of occurrence of a hazard and the magnitude of its consequence may be compounded as the risk that it poses as shown in the “risk matrix” in Figure 2 below.

Frequency of Occurrence of Hazard	Severity of Consequences of Potential Hazard					
	1 Medically treatable injury	1 Compensable injury	10 Compensable injuries	1 Permanently disabling injury	1 Fatality	10 Fatalities
Frequent; 1 or more occurrences per year	Medium	High	Very high	Severe	Severe	Severe
Several times during a career; 0.1 occurrences per year	Medium-low	Medium	High	Very high	Severe	Severe
Unlikely, but possible during a career; 0.01 occurrences per year	Low	Medium-low	Medium	High	Very high	Severe
Very unlikely during a career; 0.001 occurrences per year	Low	Low	Medium-low	Medium	High	Very high
Barely credible; 0.0001 occurrences per year	Low	Low	Low	Medium-low	Medium	High

Figure 2: Compounded Risk Matrix

The columns in the table represent the likely consequence of the hazard and the rows, the frequency of occurrence. The scales for both quantities represent consistent progressions, able they qualitative.

The risks evidently range from low to severe. Note that diagonals in the matrix represent the risks of the identified hazards, taking the effectiveness of controls into consideration.

The table represents a typical risk matrix that need not necessarily be adopted by the Contractor. The Contractor may use an alternative risk matrix provided that it is approved as part of his Health and Safety Plan.

iii. Risk Evaluation

In this step the Contractor will be required to compare the risks found during the analysis process with similar risks previously experienced for the purpose of deciding how to treat the risk. A useful systematic approach for this purpose is as follows:

- If the assessed risk exceeds similar risks that have occurred in the past and that are considered to be unacceptable, the assessed risk would require treatment depending upon its magnitude as discussed elsewhere in this document.
- If the assessed risk exceeds similar historical risks that are acceptable, treatment of the assessed risk will depend on the extent by which it exceeds the historical risks, or
- If the assessed risk is less than historical risks that are unacceptable, treatment of the assessed risk will depend on the extent by which it is less than the historical risks, or
- If the assessed risk is less than historical risks that are acceptable, the assessed risk would also be acceptable and would not require any treatment.

iv. Risk Treatment

The contractor must select one or more options of modifying risks, and implementing those options. The option(s) selected must be covered in the safety plan and be followed as prescribed. Reference can be made to SANS31000:2009 for different risk treatment options. SANS 31000:2009, clause 5.5.3 may be consulted in preparing and implementing risk treatment plans.

v. Reporting and Recording of Risks

The Principal Contractor shall ensure that the risk assessment process is recorded and included in the Health and Safety Plan. The risk assessment document should be easily accessible to the Contractor's employees, their representatives, to inspectors, the Employer or his Safety Agent. The essential contents of the document should be as follows:

- Objectives and expected outcomes,
- Description of the Works under assessment,
- Summary of context of study
- Composition of risk assessment team, (including qualifications and relevant experience),
- Approach used to systematically identify risks,
- Identified risks (ranked in order of priority),
- Method adopted for assessing frequencies and consequences of risks,
- Consequences (ranked in order of magnitude),
- Identification of individuals and groups who may be affected by major hazards and risk and who may especially be at risk,
- Basis for defining safety standards to be achieved,
- Contractor's resources devoted to risk assessment,
- Actions proposed to reduce unacceptably high risks,
- Review effectiveness of existing safety measures to control risks, and

- Implementation of program of selected treatments (including controls to manage unacceptably high risks).

vi. Monitoring and Review

The contractor must indicate in the safety plan the monitoring and review plan to be used during the construction work.

vii. Communication and Consultation

The Principal Contractor will be required to communicate and consult with internal and external stakeholders during each step of the risk assessment process. Stakeholders will include the Client or Safety Agent, the Engineer and the Contractor's employees and consultants.

8.4 Resources

8.4.1 General

In this section of his Health and Safety Plan, the Contractor will be required to state how he intends to comply with the requirements of the Occupational Health and Safety Act, 85 of 1993 and all its Regulations and related incorporated standards with regards to the resources and facilities intended for use on the project (construction work)

8.4.2 Employees

The Principal Contractor shall provide in his Health and Safety Plan his intended Staffing Organogram for the construction work. The organogram should include all applicable legal appointments and supervisors as contemplated in the Construction Regulations 2014.

Copies of the supervisory staffs' curriculum vitae or portfolio of evidence, proof of competence and their appointment letters should be appended to the Contractor's Health and Safety Plan.

The Principal Contractor's Health and Safety Plan should in addition cover at least the following aspects:

- The number of unskilled, semi-skilled and skilled (including Foreman, Charge hands, Artisans, Operators, Drivers, Clerks, Store man and Team Leaders) employees he intends employing on the Works,
- The health and safety training to be provided to the Contractor's employees,
- The program of the health and safety training,
- Systems for the review of the effectiveness of the training provided, and
- Systems to determine further training requirements throughout the construction period.

Pro-forma letters of appointment for the various inspectors, supervisors and issuers as contemplated in the Construction Regulations, 2014 are included in Annexure 1 to this specification for use by the Contractor. The Contractor shall ensure that he includes in his Health and Safety Plan the appointment letters for all his inspectors, supervisors and issuers appointed for the Works.

The Contractor may make other additional legal appointments that are applicable to the project.

8.4.3 Competencies

The Principal Contractor shall appoint competent person to perform duties that require competency. The Contractor shall establish if a person is competent to perform a certain duty or be appointed in a certain capacity by requesting all candidates to supply the required certificates of competency. Where certificates of competencies cannot be delivered, the Contractor shall request a portfolio of evidence from the respective candidates.

Contractors should do enquiries at the South African Qualifications Authority (SAQUA) relating to the qualifications required for appointment of competent persons.

8.4.4 Physical and Psychological Fitness

The Principal contractor shall ensure that all employees are in possession of a valid medical certificate of fitness to work in such an environment and issued by an occupational health practitioner in the form of Annexure 3 of the Construction regulations.

8.4.5 Subcontractors

The Contractor shall with reference to the use of subcontractors on the Works and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- The steps intended to ensure that his Subcontractors prepare, implement and maintain Health and Safety Plans,
- How health and safety information will be made available to his Subcontractors when changes are brought about to the design,
- How he intends determining that his Subcontractors are registered and in good standing with the compensation fund or with a licensed compensation insurer prior to the commencement of the Works,
- How he intends determining if his Subcontractors have made provision in their tenders for the cost of health and safety measures during the construction of the Works,
- How he intends satisfying himself on the competencies and resources of Subcontractors he intends appointing, and
- How he intends ensuring that his Subcontractors perform risk assessments prior to commencing their respective portions of the Works.

8.5 Fall Protection Equipment

The Contractor shall with reference to Section 10: Fall Protection Equipment of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Compilation of a fall protection plan,
- How the fall protection plan will be implemented and maintained,
- How employees will be screened and declared medically fit to work in areas where fall protection equipment is needed,
- How the safeguarding of persons, plant, vehicles, equipment and facilities on the construction site is contemplated,
- Training of staff working at heights and in the use of fall protection equipment,
- How a continuous assessment of the situation will be executed,
- How fall protection equipment will be inspected for safety, and
- How corrective actions will be implemented

- Emergency plans and procedures for treatment of incidents relating to falls from height.

8.6 Structures

The Principal Contractor is required to adhere to Section 11: Structures of the Construction Regulations 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How the uncontrolled fall of structures will be prevented
- How will maintenance of the structure be carried out

8.7 Temporary works

The Principal Contractor is required to adhere to Section 12: Temporary works of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How the design of Temporary works will be carried out,
- How will the Principal Contractor ensure competent supervision of Temporary works
- How the erection of Temporary work structures will be managed,
- How the continuous assessment of the safety of Temporary work structures will be done,
- How the loading/moving of Temporary work structures will be managed or limited,
- How he intends to provide safe access for all work to be carried out above the foundation bearing level, and
- How he intends keeping records of the above.

8.8 Excavation work

Principal Contractor is required to adhere to Section 13: Excavation work, of the Construction Regulations, 2014. The Principal Contractor must discuss the following in detail in his safety plan:

- How will the Principal contractor ensure competent supervision of excavation work
- How will the Principal Contractor establish the stability of ground prior to excavations,
- What steps will the Principal Contractor follow to ensure that bolstering, shoring and bracing is sufficient to ensure the safety of the excavation, and
- What steps will the Contractor follow to ensure the equipment used to safeguard an excavation is sufficient and safe?

NB: Ensure that necessary wayleaves for existing services are available before any excavation activities can commence

8.9 Suspended platform

The Principal Contractor shall with reference to Section 17: Suspended platforms of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Appoint in writing a competent person who will supervise all suspended platform works operations.
- What systems he intends using to ensure the safety of all suspended platforms,
- What tests will be performed to establish the safety of suspended platforms,

- How he intends maintaining suspended platforms being used, and
- How he will document the design, testing, maintenance and inspections of the suspended platforms.

8.10 Material hoists

The Principal Contractor shall with reference to Section 19: Materials Hoist, of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends confirming the construction stability of the material hoists,
- Appoint in writing a competent person to inspect material hoist
- What systems he intends using to ensure the safety of all material hoists,
- How inspections will be carried out daily
- What tests will be performed to establish the safety of all material hoists,
- How he intends maintaining the material hoists being used, and
- How he will document the design, testing, maintenance and inspections of all material hoists and
- Ensure competence of operators of hoist material
- What safety procedures and precautions are envisaged to ensure safe operation of the materials hoists?

8.11 Cranes

This section of the specification shall be read in conjunction with the provisions of the Driven Machinery Regulations, 1988. The Principal Contractor shall with reference to Section 22: Cranes, of the Construction Regulations 2014 and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How will environmental factors be taken into account in respect to the use of cranes,
- What systems he intends using to ensure the safety of all cranes in use,
- How he intends maintaining cranes in use,
- What tests will be performed to establish the safety of all cranes in use,
- What safety procedures and precautions are envisaged to ensure the safe operation of all cranes in use,
- How he will proof the medical fitness of the tower crane operators,
- How he will document the design, testing, maintenance and inspections of all cranes in use, and
- The Principal contractor shall proof compliance of the Driven Machinery Regulation, 1988, with reference to the lifting machinery and tackle being used.

8.12 Construction vehicles and mobile plant

The Principal Contractor shall with reference to Section 23: Construction vehicles and mobile plant of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends ensuring that construction vehicles and mobile plant are:
 - Of acceptable design and construction,

- Maintained and in good working order,
- Used according to design specifications, and
- Are protected from falling into excavations, water or areas lower than the working surfaces,
- How he intends ensuring that workers are competent, authorised and physically fit to operate construction vehicles and mobile plant,
- What traffic arrangements and safety precautions will be implemented to ensure safe operation of construction vehicles and mobile plant on the Works,
- How he intends to comply with the National Road Traffic Act 1996, and
- How he intends safeguarding employees against construction vehicles and mobile plant moving on the construction site.

8.13 Electrical Installation and Machinery on construction sites

This section of the specification shall be read in conjunction with the provisions contained in the Electrical Installation Regulations, 1992. The Principal Contractor shall with reference to Section 24: Electrical Installation and machinery on construction sites of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Appointment of competence person for all temporary control and inspection of all temporary electrical installations,
- How he intends safeguarding employees against electrical cables or apparatus under, over or on site, and
- How he will ensure that electrical installations are of adequate strength to withstand working conditions on a construction site.

8.14 Use and temporary storage of flammable liquids on construction sites

This section of the specification shall be read in conjunction with the provisions for the use and storage of flammable goods as determined in the General Safety Regulations. The Principal Contractor shall with reference to Section 25: Use and temporary storage of flammable liquids on construction sites of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How flammable liquids will be stored to minimize the risk of fire or explosions,
- How the contractor will identify a flammable store
- What safety precautions will be employed if ventilation of the flammable store is not possible,
- How access to flammable stores will be controlled,
- How empty vessels used for the storage of flammable liquids will be disposed of,
- What quantity of flammable liquids will be stored on the construction site,
- What systems are intended to ensure the safe storage of flammable liquids, and
- What retaining methods will be used to prevent the spreading of any spillage?

8.15 Water Environments

The Principal Contractor will be required to adhere to Construction Regulation 26: Water Environments, of the Construction Regulations, 2014. The Principal Contractor must discuss the following in detail in his safety plan:

- What precautions will the Contractor take to identify dangers where employees may fall into water
- What safety procedures and equipment will the Contractor implement to safeguard employees working at water environments

8.16 Housekeeping and general safeguarding on construction sites

Principal Contractors will be required to adhere to Section 27: Housekeeping and general safeguarding on construction sites, of the Construction Regulations, 2014. This regulation must be read in conjunction with the provisions of the Environmental Regulations for Workplaces, 1987 (as amended). The Principal Contractor must discuss the following in detail in his safety plan:

- How will contractors ensure the neatness of construction sites
- What measures does the Contractor envisage to:
 - Store and/or stack materials,
 - Remove debris from site,
 - Prevent unauthorized entrance to the site
 - Protect employees or passers-by from falling objects

8.17 Stacking and storage on construction site

This section of the specification shall be read in conjunction with the provisions for the stacking of articles contained in the General Safety Regulations. The Contractor shall with reference to Section 28: Stacking and storage on construction sites of the Construction Regulations, 2014, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Who will supervise the stacking and storage of materials on site,
- What systems are intended to ensure the safe stacking and storage of materials on the site ,and
- How he will keep the storage areas neat and under control

8.18 Fire precaution on construction sites

Principal Contractors will be required to adhere to Section 29: Fire precautions on construction sites, of the Construction Regulations, 2014. This regulation must be read in conjunction with the provisions of the Environmental Regulations for Workplaces, 1987 (as amended). The Principal Contractor must discuss the following in detail in his safety plan:

- How the Principal Contractor will minimize the risk of fire on the site
- How the Principal Contractor will identify potential fire hazards
- What prohibitions the Contractor will implement to manage risk areas
- How many employees the Principal Contractor will train in firefighting as per risk assessment
- What organization the Principal Contractor envisage to combat fires on sites
- What precautions and procedures will be followed to evacuate employees in the case of a fire

NB: The contractor must also familiarize themselves and adhere to the precautionary measures that the client has in place for the fire prevention and control.

8.19 Construction employees' facilities

Principal Contractors will be required to adhere to Section 30: Construction welfare facilities of the Construction Regulations, 2014. This regulation must be read in conjunction with the provisions of the Facilities Regulations, 1990 (as amended) and SANS 10400. The Principal Contractor must discuss the following in detail in his safety plan:

- How will the Principal Contractor establish the amount of facilities required for employees to shower, change, eat and attend to sanitary needs
- What measures will the employer take to house employees on site who lives far from their residences or for the provision of transport?

8.20 Operational Control of the Construction Site

In this section of his Health and Safety Plan, the Contractor will be required to state how he intends to comply with the requirements of the Occupational Health and Safety Act, 1993 and all its regulations and related incorporated standards with regards to the execution of all categories of work.

a. Personnel Safety Equipment and Facilities

The Contractor shall comply with Section 2 of the General Safety Regulations, and shall in particular provide all necessary personnel protective equipment for his personnel for the duration of the construction period. To this end the Contractor shall without limiting his obligations indicate in his Health and Safety Plan:

- Identify training requirements in the use and maintenance of personal protective equipment,
- The type of personnel safety equipment he will provide,
- How he intends issuing it to his employees, and
- How he will maintain the personnel safety equipment issued.

b. Display of substituted notices and Signs

The following notices and signs are, where applicable, compulsory on the construction site as well as the contraction yards.

Area/Activity where construction sign is needed	Notice or sign required in
Display of notices and signs	General Safety Regulation 2b
Entry	General Safety Regulation 2 (c)
First Aid box	General Safety Regulation 3 (6)
Toilets and Change rooms	Facilities Regulation 2(5).4 (2) (f)
Hazardous and Chemical Storage area	General Safety Regulation 4 (8) (i) and (ii)
Machinery	General Machinery Regulation 9
Prohibition of smoking and eating or drinking at workplaces where high risk substances are stored or handled	Facilities Regulation 7

c. First Aid, Emergency Equipment and Procedures

The Principal Contractor shall comply with Section 3 of the General Safety Regulations regarding first aid, emergency equipment and procedures.

- How he intends to ensure competence of first aiders and
- What emergency equipment will be used

d. Work in confined spaces

The Principal Contractor shall comply with Section 5 of the General Safety Regulations regarding work in confined spaces.

- How he intends to ensure competence of the people working in confined spaces.
- What steps to be taken to ensure the safety of the confined space and the air therein
- What measure he intends to put in place in case of emergency in a confined space

e. Ladders

The Principal Contractor shall with reference to Section 13A of the General Safety Regulations and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends ensuring that ladders used are safe and constructed of materials approved for its intended use, and
- What precaution will be made to ensure the stability of ladders in use?
- How often inspections will be conducted

f. Environmental Conditions

The Principal Contractor shall comply with the Environmental Regulations for Workplaces, 1987, and shall address the following aspects as described in the regulations in his Health and Safety plan:

- Thermal requirements,
- Lighting,
- Windows,
- Ventilation,
- Housekeeping,
- Noise and hearing conservation,
- Precautions against flooding, and
- Fire precautions and means of egress.

g. Hazardous Chemical Substances

The Principal Contractor will be required to adhere to the Regulations for Hazardous Chemical Substances 1995 as amended in the handling and storage of hazardous chemical substances. The Principal Contractor must discuss the following in detail in his safety plan in respect of each hazardous chemical substance that will be used in the works:

- Storage of substance
- Handling of substance
- Protective clothing and other devices to be used while handling the substance
- Medical surveillance.
- How will he ensure that employees are adequately and comprehensively informed and trained

8.21 Implementation of Contractors' Health and Safety Plan

a. General

The Principal Contractor shall describe in his Health and Safety Plan how he intends implementing his OHS plan. The Principal Contractor shall indicate the methods he intends using to ensure accurate record keeping of all critical elements identified in his risk assessment and covered in his Health and Safety Plan. The Principal Contractor shall indicate:

- How internal audits will be carried out,
- How audit findings will be addressed,
- How he would implement the corrective measures and recommendations of internal audits or inputs of employees.
- How he intends to review the safety plans,
- How he would train staff and keep training records

b. Administrative Requirements

The Principal Contractor shall comply with the administrative requirements of the Occupational Health and Safety Act and Regulations 85 of 1993 and other legal requirements. The Principal contractor's administrative system will without limiting his obligations cover the following:

- Keeping of a safety file on site,
- Maintenance of his Health and Safety plan,
- Procedures to follow for the appointment of competent persons,
- Construction work permits and existing services wayleaves (where applicable)
- Procedures to follow for notifications,
- Injury on duty [IOD] administration,
- Minutes of safety meetings,
- Inspection checklists/registers,
- Safe keeping of checklists/registers, and
- Internal audits documentation.

The Principal Contractor shall in particular ensure that at least one copy of the Occupational Health and Safety Act, 1993 and its Regulations is available on site for every 5 employees employed.

c. Incident Reporting, Investigation and Recording

The Principal Contractor shall comply with Section 9 of the General Administrative Regulations, 1996 and shall in particular (in accordance with section 12) furnish an inspector with information relating to health and safety on the construction site, when requested to do so.

The Principal Contractor shall report all incidents and or occurrences to the Client, investigate and keep record as contemplated by the Occupational Health and Safety Act 85 of 1993 and Regulations. All reportable incidents should be reported to the department of Labor within the time frame stipulated by section 24 of the Act.

The principal contractor shall have an incident management procedure to detail how to comply with the general safety regulation 9 regarding reporting investigation and recording.

8.22 Training

The Principal Contractor shall train all his employees in accordance with the requirements of section 13 of the Occupational Health and Safety Act, 1993. The Principal Contractor shall ensure that every employee is informed of the following:

- The hazards of any work he has to perform or plant machinery or equipment he is permitted to use, and
- The precautionary measures which should be taken regarding the above.

The Principal Contractor shall, without limiting his obligations, indicate in his Health and Safety Plan how he intends:

- Identifying the training needs of the personnel he intends employing, and
- Implementing the training identified
- What proof of induction training will be carried by his employees

a. General induction Training

- All members of the contractor's management as well as all the people appointed as responsible for Occupational Health and Safety in terms of the OHS Act, Construction Regulations and other Regulations are required to attend a general safety induction.
- All employees of the principal contractor and other contractors must be in possession of proof of Induction Training.
- All subsequent and newly appointed employees must also be subjected to the Induction Training as soon as possible after the appointment but prior to start work on site.
- All visitors must undergo an induction training on arrival to site.

b. Site Specific Induction Training

The principal contractor will be required to prepare the Task based Induction training based on the risk assessment for the contract work and train all employees who will be involved in the selected task. All employees must have a proof of such training and copies in the Safety File

c. Other Training

- All operators, drivers and users of construction vehicles and mobile plants must be in possession of a valid proof of training and where applicable licenses and proof of competency
- All employees in jobs requiring competence in terms of the OHS Act and Regulations must be in possession of valid proof of training.

d. Awareness and Promotion

The Principal Contractor is required to have a promotion and awareness program in place to create an Occupational Health and Safety culture within employees as well as subcontractors. The following are some of the methods that may be used:

- Toolbox Talks
- Posters
- Videos
- Competitions
- Participative activities such As Occupational Health and Safety Circles

8.23 Safety Meetings

The Principal Contractor shall conduct at least one formal safety meeting per month with his employees to ensure safety awareness and shall maintain appropriate records of attendance and meeting content. Such records shall be included in the safety file. The meetings shall address at least the following:

- Accident / safety incidents
- Hazardous conditions
- Hazardous materials / substances
- Job or work projections
- Safe Work procedures
- Protective clothing / equipment
- Housekeeping
- Inspections
- General safety topics

8.24 Occupational Health and Safety Committees

The principal contractor must establish Occupational Health and Safety committees consisting of all designated Occupational Health and Safety Representatives together with a number of management Representatives that are not allowed to exceed the number of Safety Reps on the committee (section 19 of the OHS ACT). The members of the Safety Committee must be appointed in writing and the appointment letters must be in the Safety File.

The Safety Committee must meet but at least once a month and consider at least the following agenda items:

- Opening and Welcome
- Members present, apologies and absent
- Minutes of previous meeting
- Matters arising from the previous meeting
- Safety Representatives inspection reports

- Incident and/or accident investigation reports
- Incident, accident and /or injury statistics
- Audit feedback
- Medical surveillance
- Endorsement of legal OHS registers and other statutory documents by a duly authorized representative of the principal contractor
- General
- Close and next meeting

8.25 Inspections and Monitoring

The Principal Contractor shall be required to inspect each workplace prior to works commencing to ensure that minimum control measures and protective equipment are in place and that by entering the workplace no person will be exposed to any hazard which could affect his health or safety. The Principal Contractor shall without limiting his obligations, indicate the following in his Health and Safety Plan:

- The inspection and monitoring procedures he intends employing to determine the safety of workplaces, and
- Who will be responsible for the checking of each workplace at the commencement of each shift?

The Principal Contractor shall include in his Health and safety Plan all the checklists he intends using during the inspection and monitoring of the implementation of his Health and Safety Plan.

The Principal Contractor can expect inspections of the works by any of the following parties:

- The Client or Safety Agent,
- Department of Labor Inspector or any authorized person appointed by the Minister as Chief Inspector or his representative.

The Client, Safety Agent or his representative will stop the work at any time under the following conditions:

- If the Contractor is not compliant with his Health and Safety Plan
- Imminent threat to the health and safety of any person on site
- Continuous non-conformance to corrective action requests.
- In the occurrence of section 24 incident

8.26 Auditing

a. Internal Audits

The Principal Contractor shall conduct periodic site audits as contemplated in section 7(1.c.vii) of the Construction Regulations 2014. The Principal Contractor will ensure that the same arrangement detailed above be implemented with his Sub Contractors to ensure his compliance with the Construction Regulations.

b. Audits by Client or Safety Agent

The Client or Safety Agent will carry out period audits or follow-up audits, as the case may be, at any time during the construction period provided that:

- The audit or follow-up audit are carried out during ordinary working hours, and

- The Client or Safety Agent gives the Contractor at least 48 hours' notice of his intention to carry out such audits.

The audits described above only constitutes part compliance by the Client or the Safety Agent with section 5.(1)(o) of the Construction Regulations, 2014.

The Principal Contractor's employees as indicated in the OHS organogram and the Client's project manager will be present during any audit carried out by the Employer or his Safety Agent.

NB: The office space of the Principal contractor utilized for the project duration will be audited in line with the requirements of the Occupational Health and Safety Act 85 of 1993 and Regulations.

9. References to the Scope of Works in terms of the Environmental Management Plan

9.1 Introduction

This generic document will address the environmental impacts during the design, construction and operational phases of a project. Due regard must be given to environmental protection during the entire project. To achieve this number of environmental specifications/recommendations are made. These are aimed at ensuring that the Contractor maintains adequate control over the project in order to:

- Minimize the extent of impact during construction,
- Ensure appropriate restoration of areas affected by construction.
- Prevent long term environmental degradation.

The contractor must be made aware of the environmental obligations that are stipulated in this document and declares himself/herself to be conversant of all relevant environmental legislation. The Contractor should also be aware that the Engineer will monitor the implementation of the procedures.

9.2 Policy Statement

The construction will be to the best management practices as identified to minimize the environmental impact of activities associated with the development.

9.3 Objectives of The EMP

The EMP has the following goals:

- Identifying those construction activities that might have a detrimental impact on the environment;
- Detailing the mitigation measures that will need to be taken, and the procedures for their implementation;
- Establishing the reporting system to be undertaken during the construction.

The EMP also serves to highlight specific requirements that will be monitored during the development and should the environmental impacts not have been satisfactory prevented or mitigated, corrective action will have to be taken. The document should, therefore, be seen as a guideline that will assist in minimizing the potential environmental impact of activities.

9.4 Designated Environmental Officer

For the purpose of the EMP, a nominated representative of the Contractor should be the designated environmental officer for the project. The nominated representative of the Contractor will therefore be responsible for ensuring that the provisions of the EMP are complied with. The Engineer will be responsible for issuing instructions to the Contractor where environmental considerations call for action to be taken. The environmental officer will submit monthly reports to the Engineer on site who will verify the information.

9.5 Legal Requirements

Under normal circumstances and EMP would be the end result or the final stage in the EIA procedure. However, a working agreement was negotiated between the National Department of Environmental Affairs and Tourism (DEAT) and the City of Tshwane Metropolitan Municipality. The agreement stipulates the project types the City of Tshwane Metropolitan Municipality need to submit to DEAT for approval and those project types the City of Tshwane Metropolitan Municipality do not need to submit for approval. For those actions that do not need approval, the City of Tshwane Metropolitan Municipality undertook to compile generic EMP's to assist to minimizing degradation to the area. The following project types fall in this non-approval category: periodic maintenance, special maintenance, rehabilitation and specific upgrades.

9.6 Mitigation Measures

In setting mitigation measures, the practical implications of executing these measures must be borne in mind. With early planning, both the cost and the impacts can be minimised.

9.6.1 Establishment of site offices

i. Site plan

The Contractor shall provide the Engineer on site with a plan detailing the layout of site offices facilities, such as chemical toilets, areas for stockpiling of material, storage of hazardous materials and provision of containers. The site offices should not be sited in close proximity to steep areas as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the site, and in particular the ablution facilities, aggregate stockpiles and hazardous material stockpiles are located as far away as possible from any water course as possible. The site plan shall be submitted before the site hand over meeting.

ii. Vegetation

The vegetation surrounding the site offices is to be left as intact as possible and vegetation planted at the site should be indigenous. Only trees directly affected by the works and such others as may be indicated by the Engineer in writing, may be sawn off/removed. The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien invader plant shall be cleared by hand before seeding.

iii. Rehabilitation

The site offices will require rehabilitation at the end of the contract. All construction material, including concrete slabs and braai areas are to be removed from the site on completion of the contract.

iv. Water for human consumption

Water for human consumption must be tested and treated in accordance with recommendations.

9.6.2 Sewage treatment

Adequate toilet facilities are to be provided. Use of the veld for this purpose shall not, under any circumstances, be allowed. The Contractor shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer. Latrines shall be positioned within walking distance from wherever employees are employed on the works.

Save and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak always, dry composting toilets such as “enviro loos”, or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets is to be done in consultation with the Site Engineer.

9.6.3 Waste management

Waste management and waste minimization must be implemented at the outset of the contract.

i. Litter

No littering by construction workers is allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site is to be kept free of litter.

ii. Removal of solid waste

Solid waste is to be stored in an appointed area for collection and disposal. A refuse control system must be established for the collection and removal of refuse to the satisfaction of the Engineer. Disposal of solid waste will be in a Department of Water Affairs and Forestry (DWAF) licensed landfill site.

iii. Hazardous waste

Hazardous waste such as bitumen, tar, oils, etc. shall be disposed of in a Department of Water Affairs and Forestry approved landfill site. Special care must be taken when using tar products such as tar prime or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.

9.6.4 Soil management

Topsoil: The contract provides for the stripping and stockpiling of topsoil from the site for later reuse. Topsoil is considered to be of a minimum thickness of + 300 mm of the natural soil, including all the vegetation and organic matter. The areas to be cleared of topsoil shall include the storage areas. Weeds appearing on the stockpiled topsoil shall be removed by hand before seeding. Soils contaminated by hazardous substances shall be disposed of in an approved Department of Water Affairs and Forestry waste disposal site.

Borrow material: The Contractor’s attention is drawn to the requirements set forth by the Department of Mineral and Energy Affairs in terms of the submission of EMPR’s for establishment, operation and rehabilitation of borrow pits and quarries. The cost of complying with the requirements shall be deemed to be included in existing rates in the schedule of quantities.

9.6.5 Discovery of archaeological sites, artifacts or graves

i. Archaeological site

If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Engineer of such discovery. The National Monuments Council must be contacted who will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist. Read with Conditions of Contract.

ii. Graves

If a grave on site is uncovered, work in the immediate vicinity must be stopped and an undertaker as well as the National Monuments Council should be contacted. The undertaker will place advertisements in the newspapers concerning the grave. He will also provide for the relocation of bones, should it be necessary. Read with Conditions of Contract.

9.6.6 Stockpiled material

The Contractor shall so plan his activities that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material must be indicated and demarcated on the site plan and approved in writing by the engineer.

The area chosen shall be devoid of indigenous trees and shrubs. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. After the stockpiled material has been removed, the site shall be reinstated as closely as possible to its original condition. All areas affected by stockpiling shall be landscaped, top soiled and grassed to the Engineer's approval and at the Contractor's cost.

Material milled out of the existing road surface that is temporarily stockpiled within the road reserve shall:

- be stockpiled so as to be as inconspicuous as possible
- be prevented from contaminating water courses,
- be cleared of weeds.

In all cases, the areas for stockpiling and disposal of construction rubble shall be approved by the Engineer before such operation commences.

9.6.7 Fuel, diesel and other hazardous materials

• Hazardous materials

All hazardous materials i.e. bitumen binders shall be stored in an appointed area that is fenced and has restricted entry. Storage of bituminous products shall only take place using suitable containers to the approval of the Engineer.

Under no circumstances shall the spoiling of bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected bituminous products shall be taken to the supplier's production plant. No spillage of bituminous products shall be allowed on site. Affected areas shall be promptly reinstated to the satisfaction of the Engineer.

- **Fuel**

Should any fuel storage tank be required on site, the Contractor shall ensure that he has complied with the necessary legal requirements for the erection of such tanks. Leakage must be avoided. The fuel and diesel areas should be bonded to accommodate any spillage or overflow from these activities.

- **Oil, grease**

Oil, grease and cleaning materials from the maintenance of vehicles and machinery shall be collected in a sump and sent back to the supplier or otherwise disposed of at a registered site.

- **Cooking oil**

The Contractor should ensure that sufficient fuel is available for heating and cooking purposes should this be necessary.

- **Spillages**

Streams, rivers and dams must be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products. In the event of a spillage, prompt action must be taken by competent instances to clear the affected area.

General considerations

Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a designated register and the response noted with the date and action taken. This record must be submitted with the monthly reports.

Any avoidable non-compliance with the above-mentioned measures may be considered sufficient ground for withholding payment of part or all amounts to be paid for the said item.

9.7 Measurement and Payment

The Contractor shall not be separately reimbursed or compensated in respect of his compliance with the provisions of this part of the Scope of Works. All costs so incurred shall be deemed to be included in the rates tendered for the various items of work listed in the schedule of quantities.

TABLE 1 SUMMARY OF MITIGATION MEASURES

ENVIRONMENTAL COMPONENT	ACTIVITY	MITIGATION
<i>Establishment of site offices</i>	<i>Siting of offices</i>	<i>Preferred areas would be flat areas along the route. Avoid steep areas as soil erosion could increase. Avoid water courses</i>
	<i>Site Plan</i>	<i>Contractor will provide engineer detail of layout of site facilities within two weeks of moving to the site ie chemical toilets, the demarcation of areas for stockpiling of materials, storage of hazardous materials and the provision of containers. The offices shall be fenced. The site plan will be submitted before the site hand over meeting.</i>
<i>Site rehabilitation</i>	<i>Cleanup</i>	<i>All construction material is to be removed from the site on completion of the contract.</i>
<i>Vegetation</i>	<i>On site</i>	<i>Vegetation planted on the site should be indigenous. Only trees directly affected by works as indicated in writing by Engineer, shall be sawn off/removed</i>
	<i>Weeds</i>	<i>Clearance of weeds must be done by hand before seeding.</i>
	<i>Grass cover</i>	<i>The grass cover surrounding the construction site is to be left as intact as possible or restored to its original condition.</i>
<i>Water</i>	<i>Available for human consumption</i>	<i>Water for human consumption must be tested and treated in accordance with recommendations.</i>
<i>Soil management</i>	<i>Topsoil</i>	<i>The topsoil (\pm 300 mm) of any excavation shall be removed and stockpiled separately from underlying material in an appointment area</i>
	<i>Borrow material</i>	<i>EMPR's for borrow pits to be submitted to the Department of Mineral and Energy Affairs for approval</i>
<i>Archaeological & Cultural sites</i>	<i>Discovery of archaeological sites of artefacts</i>	<i>If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately and an archaeological consultant must be contacted. Work may only resume once clearance is given in writing by the archaeologist.</i>

ENVIRONMENTAL COMPONENT	ACTIVITY	MITIGATION
Graves	Discovery of graves	If a grave on site is uncovered, work in the immediate vicinity must be stopped and an undertaker should be contacted
Waste management	Solid & Construction waste	Solid waste is to be stored in an appointment area for collection and disposal. Disposal of waste will be in a DWAF licensed landfill, and no waste may be burnt on site.
	Litter	The site is to be kept free of litter
Sewage treatment	Toilet facilities	Adequate toilet facilities are to be provided, and the siting of chemical toilets is to be done in consultation with the site engineer. Use of the veld for this purpose shall not be allowed.
Fuel, diesel & hazardous materials	Hazardous Materials	All hazardous materials ie bitumen binders will be stored in an appointed area that is fenced and has restricted entry. No spoiling of bituminous products on site, over embankments, in borrow pits or any burning. No spillage of bituminous products shall be allowed on site.
	Fuels	All fuel tanks will be stored in an appointed area. Leakage will be avoided.
	Cooking fuel	The Contractor should ensure that sufficient fuel is available for heating and cooking purposes should this be necessary.
	Oil, grease	Oil, grease and cleaning materials from maintenance of vehicles shall be collected in a sump and sent back to supplier.
	Spillages	Streams, rivers or dams must be protected against spillages of pollutants mentioned in 6.7 (e). In the event of a spillage, prompt action must be taken to clear the affected area.
General considerations	Lines of authority	A nominated representative of the contractor will be the designated environmental officer for the site.
	Reports	The environmental officer will submit monthly reports to the Engineer who will verify the information

ENVIRONMENTAL COMPONENT	ACTIVITY	MITIGATION
	<i>Complaints</i>	<i>Complaints received regarding activities on the construction site pertaining to the environment should be recorded in a designated register, and the response noted with the date and action taken. This record must be submitted with the monthly report</i>

**ANNEXURE 1:
LEGAL APPOINTMENTS TEMPLATES**

Attention: **(Assistant Construction Manager's Name)**

APPOINTMENT OF THE ASSISTANT CONSTRUCTION MANAGER IN TERMS OF CONSTRUCTION REGULATION 8(2)

I, **(contractor's name)** hereby appoint you **(assistant construction manager's name)** as the assistant manager responsible for **(site address)** to carry out the construction work of **(description of construction work and area of responsibility)**.

In terms of this appointment you are required to ensure that all construction work performed under your supervision is carried out as follows:

1. By persons suitably trained and competent to do such work;
2. That all persons are aware and understand the hazards attached to the work being carried out;
3. That the required risk assessments are carried out;
4. That precautionary measures are identified and implemented;
5. That discipline is enforced at the construction site at all times;
6. That all identified statutory requirements are met; and
7. That any other interest in terms of health and safety with respect to the responsible area is met.
8. You will accept the duties of the Construction manager in his absence.

You are required to report any deviations of the above-mentioned instruction to **(construction manager's name)** and in his absence to the contractor's representative.

This appointment is valid from **(date)** to the completion of the stipulated construction work.

You shall submit a written weekly report or any non-compliance with the Construction Regulations 2014.

Contractor's Representative full name	Signature	Date

.....

Kindly confirm your acceptance of this appointment by completing the following:

I, **(assistant construction manager)** understand the implications of the appointment as detailed above and confirm my acceptance.

Assistant construction Manager	Signature	Date

Attention: **(Safety Officer's Name)**

**APPOINTMENT OF THE CONSTRUCTION HEALTH AND SAFETY OFFICER IN
TERMS OF CONSTRUCTION REGULATION 8(5)**

I, **(contractor's name)** hereby appoint **(safety officer's name)** as the Construction Health and Safety Officer responsible for **(site address)** to manage all the health and safety issues as required in terms of the Act by establishing a health and safety program with elected health and safety Representatives.

You shall ensure that all the requirements in terms of the Act and in particular in terms of the Construction Regulations, 2014 are met. You shall also ensure that all appointed sub-contractors comply with the requirements as stipulated in the Construction Regulations, 2014.

You shall further ensure that all records, registers and required lists are maintained and shall stop construction work upon identifying any non-compliance by any contractor; this includes stopping any work should the competency of the person carrying out such work be questionable.

This appointment is valid from **(date)** to the completion of the stipulated construction work.

_____	_____	_____
Contractor's Representative full name	Signature	Date

.....

Kindly confirm your acceptance of this appointment by completing the following:

I, **(construction health and safety officer's name)** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Construction Health & Safety Officer's full name	Signature	Date

Attention: (**Construction Vehicle and Mobile Plant Inspector**)

APPOINTMENT OF THE CONSTRUCTION VEHICLE AND MOBILE PLANT INSPECTOR IN TERMS OF CONSTRUCTION REGULATION 23(1) (d)

I, (**contractor's name**) hereby appoint (**construction vehicles and mobile plant inspector's name**) as the construction vehicles and mobile plant inspector responsible for (**site address**) to inspect on a daily basis all construction vehicles and mobile plant, as per the provided checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to construction vehicles and mobile plant that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations, 2014 are at all times met.

This appointment is valid from (**date**) to the completion of the stipulated construction work.

_____	_____	_____
Contractor's Representative full name	Signature	Date

.....

Kindly confirm your acceptance of this appointment by completing the following:

I, (**construction vehicles and mobile plant inspector's full name**) understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Construction vehicles and mobile plant Inspector's full name	Signature	Date

Attention: **(Sub-Contractor's Name)**

APPOINTMENT OF SUB-CONTRACTOR IN TERMS OF THE CONSTRUCTION REGULATION 7(c)

I, **(contractor's name)** hereby appoint **(sub-contractor's name)** as the sub-contractor responsible for **(site address)** to carry out the construction work of **(description of construction work)**.

You shall ensure that you meet all the requirements in terms of the Act and in particular in terms of the section 37(2) agreement and the Construction Regulations, 2014. You shall also ensure that all contractors appointed by yourself and reporting to you comply with the requirements as stipulated in the Construction Regulations, 2003.

You shall also ensure that all the information and specifications to ensure that the construction work is carried out in a safe manner are carried over to all contractors appointed and reporting to you.

You shall further ensure that all records, registers and required lists are maintained and that all persons appointed to carry out tasks as stipulated by these regulations are competent and have the necessary resources to complete their tasks effectively in such a manner that health and safety is not in any manner compromised.

This appointment is valid from **(date)** to the completion of the stipulated construction work.

You shall submit a written weekly report on all shortfalls that have not been met in terms of these regulations.

Contractor's Representative full name Signature Date

Kindly confirm your acceptance of this appointment by completing the following:

I, **(sub-contractor's name)** understand the implications of the appointment as detailed above and confirm my acceptance.

Sub-Contractor's Representative full name Signature Date

Attention: **(Construction Manger's Name)**

APPOINTMENT OF THE CONSTRUCTION MANAGER IN TERMS OF CONSTRUCTION REGULATION 8(1)

I, **(contractor's name)** hereby appoint **(construction manager's name)** as the Manager responsible for **(site address)** to carry out the construction work of **(description of construction work and area of responsibility)**.

In terms of this appointment you are required to ensure that all construction work performed under your supervision is carried out as follows:

1. By persons suitably trained and competent to do such work;
2. That all statutory appointments have been completed;
3. That, where required, health and safety committees are established and that meetings are accordingly held;
4. That all persons are aware and understand the hazards attached to the work being carried out;
5. That the required risk assessments are carried out;
6. That precautionary measures are identified and implemented;
7. That discipline is enforced at the construction site at all times;
8. That all identified statutory requirements are met; and
9. That any other interests in terms of health and safety with respect to the responsible area is met.
10. You will in writing delegate your duties to the Assistant Construction Supervisor while absent from site.

You are required to report any deviations of the above-mentioned instructions to **(contractor's name)**. This appointment is valid from **(date)** to the completion of the stipulated construction work. You shall submit a written weekly report on all shortfalls that have not been met in terms of these regulations.

_____	_____	_____
Contractor's Representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, **(construction manager)** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Construction Manager's full name	Signature	Date

Attention: (*Excavation Work Supervisor's Name*)

APPOINTMENT OF THE EXCAVATION WORK SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 13 (1)(a)

I, (*contractor's name*) hereby appoint (*excavation work supervisor's name*) as the excavation work supervisor responsible for (*site address*) to supervise and carry out all the necessary inspections in terms of all excavation work as per the provided checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to excavation work that that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations are at all times met.

This appointment is valid from (*date*) to the completion of the stipulated construction work.

_____	_____	_____
Contractor's representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, (*excavation work supervisor's full name*) understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Excavation Work Supervisor full name	Signature	Date

Attention: (*Ladder Inspector's Name*)

APPOINTMENT OF THE LADDER INSPECTOR IN TERMS OF THE GENERAL SAFETY REGULATION 13(A)

I, (*contractor's name*) hereby appoint (*ladder inspector's name*) as the ladder inspector responsible for (*site address*) to manage ladders on site. You should inspect the ladders as per the checklist at least once a week.

You shall ensure that when becoming aware of any health and safety hazards in respect to ladders that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations, 2003 are at all times met.

This appointment is valid from (*date*) to the completion of the stipulated construction work.

Contractor's representative full name Signature Date

Kindly confirm your acceptance of this appointment by completing the following:

I, (*ladder inspector's full name*) understand the implications of the appointment as detailed above and confirm my acceptance.

Ladder inspector's full name Signature Date

Attention: ***(Risk Assessor's Name)***

APPOINTMENT OF THE CONSTRUCTION SITE RISK ASSESSOR IN TERMS OF CONSTRUCTION REGULATION 9(1)

I, ***(contractor's name)*** hereby appoint ***(risk assessor's name)*** as the construction site risk assessor responsible for ***(site address)*** to carry out risk assessments prior to the commencement of construction work and any other risk assessment that may be required for the duration of the construction work.

You shall ensure that all risks are identified and analyzed and that safe working procedures are drafted and implemented to reduce, mitigate or controls the hazards that were identified.

You will at least use the risk evaluation program with the provided checklists.

This appointment is valid from ***(date)*** to the completion of the stipulated construction work.

Contractor's representative full name Signature Date

Kindly confirm your acceptance of this appointment by completing the following:

I, ***(construction site risk assessor's name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

Construction site Risk Assessor's full name Signature Date

Attention: **(Stacking and Storage Supervisor's Name)**

APPOINTMENT OF THE STACKING AND STORAGE SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 28 (a)

I, **(contractor's name)** hereby appoint **(stacking and storage supervisor's name)** as the stacking and storage supervisor responsible for **(site address)** to manage all stacking and storage on site.

You shall inspect all new stacking and thereafter as often as needed according to the checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to stacking and storage that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations are at all times met. On identifying any shortfalls or hazards convey such information in writing to the construction supervisor.

This appointment is valid from **(date)** to the completion of the stipulated construction work.

_____	_____	_____
Contractor's Representative full name	Supervisor	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, **(stacking and storage supervisor's full name)** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Stacking and Storage Supervisor's	Signature	Date

Attention: First Aider

OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993), GENERAL SAFETY REGULATIONS 3(4) – FIRST AIDER

I, _____, having been appointed as contemplated in Section 16(2) of the Occupational Health and Safety Act (85 of 1993), hereby appoint you, _____, as First Aider for the _____.

RESPONSIBILITIES

1. Ensure you inspect the contents of the first aid box at least once per month.
2. Ensure all dressing undertaken is recorded on the treatment register.
3. Ensure deviations noted are reported to your supervisor.
4. Ensure the necessary signage is placed to define first aid box placement and responsible first aider's name.

Kindly confirm your acceptance of this appointment and understanding of the duties involved by signing this legal appointment.

Yours faithfully

SECTION 16 (2) APPOINTEE

I accept the appointment as set out above and confirm my understanding of the duties involved.

Signed: _____

Date: _____

Attention: Safety Representative

OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

SECTION 17 – HEALTH AND SAFETY REPRESENTATIVE

I, _____, having been appointed as contemplated in Section 16(2) of the Occupational Health and Safety Act (85 of 1993), hereby appoint you, _____, as Health and Safety Representative, as contemplated in Section 17 of the Occupational Health and Safety Act (85 of 1993). You are hereby appointed from _____ until _____ as a Health and Safety Representative for the following project: _____.

RESPONSIBILITIES

1. Review the effectiveness of the Health and Safety measures within your area of responsibility;
2. Assess the potential hazards to the Health and Safety of the employees at the workplace;
3. Investigate the causes of incidents and all complaints from the employees relating to their Health and Safety;
4. Inspect the workplace and report on such inspection, and the aspects mentioned in (1), (2) and (3) above, to the employer;
5. Participate in the investigations into incidents, in your designated area as contemplated in Section 18 of the Occupational Health and Safety Act (85 of 1993).

Kindly confirm your acceptance of this appointment and understanding of the duties involved by signing this legal appointment.

Yours faithfully

SECTION 16 (2) APPOINTEE

I accept the appointment as set out above and confirm my understanding of the duties involved.

Signed: _____

Date: _____

ANNEXURE 2: IDENTIFIED HAZARDS

Identified Hazards

In terms of Regulation 9 (1) (a) of the Construction Regulations 2003 the following hazards anticipated with the scope of work have been identified.

Potential Hazards

1. Commissioning of new installations
2. Confined space entry
4. Excavation shoring / brazing
5. Excavations been flooded during rainy season
6. Explosions / arch flashes
7. Loading and offloading vehicles
8. Manual handling of materials
9. Plant and equipment integrity
10. Public and traffic safety
11. Requirements for plant isolations
12. Working on heights
13. Stacking and storage of equipment / materials
14. Tie-ins into existing equipment
15. Usage of compressed air and equipment
16. Work involving radioactive sources
17. Working in operational areas
18. Working on live electrical installations / sub-stations / MCC rooms
19. Working on moving equipment
20. Potential Hazards identified particularly for electrical work.

NOTE 1: The list of potential hazards is by no means intended to be all inclusive and is not limited to this list, and it remains the responsibility of the Contractor to identify all possible hazards with regards to his scope of work and to put measures in place to mitigate, reduce or control these hazards.

NOTE 2: Refer also on the safety regulation document attached for the control measures on other electrical hazards

 <p>CITY OF TSHWANE IGNITING EXCELLENCE</p>	City of Tshwane: Shared Services Department: ICT Division	
	Baseline Risk Assessment document	

PROJECT INFORMATION:

CONTRACT NR:	LOCATION:	SCOPE OF WORK:

RISK RATING AND ABBREVIATIONS:

Risk Rating	Abbreviations
15-35 EXTREME	E-ENVIRONMENTAL
8 - 14 HIGH	H = HEALTH
4 - 7 MEDIUM	S=SAFETY
1 - 3 LOW	

RISKS CONSEQUENCES AND PROBABILITY:

RISKS		CONSEQUENCES	PROBABILITY				
			Almost Certain	Likely	Possible	Unlikely	Almost Impossible
			5	4	3	2	1
EHS	Multiple fatalities, or significant irreversible effects to >50 persons Serious, long term environmental impairment of ecosystem function Very serious impact on quality of product/service. Definite loss of customer or discontinuation of contract with service provider	5	25	20	15	10	5
EHS	Single fatality and/or severe irreversible disability to one or more persons Serious medium term environmental effects Serious impact on quality of product / Probable loss of customer or discontinuation of contract with service provider	4	20	16	12	8	4

EHS	Moderate irreversible disability or impairment (<30%) to one or more persons. Moderate, short-term effects but not affecting ecosystem function Moderate impact on quality of product / Possible loss of customer or discontinuation of contract with service provider	3	15	12	9	6	3
EHS	Objective but reversible disability requiring hospitalization Minor effects on biological or physical environment Minor impact on quality of product / Minor impact on relationship with customer or service provider	2	10	8	6	4	2
EHS	No medical treatment required. Limited damage to minimal area of low significance Limited impact on quality of product / Minimal impact on relationship with customer or service provider	1	5	4	3	2	1

PROJECT BASELINE RISK ASSESSMENT:

No:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequence	Probability	Risk Rating	
1	INSTALLATION OF OPTIC FIBRE CABLE UNDERGROUND	ARRIVING ON SITE/ ENTERING SITE	VEHICLE NECESSARY TOOLS	OFF LOADING AND LOADING OF MATERIALS		S				
				IMPROPER MANUAL HANDLING OF MATERIAL/ INCORRECT BENDING/ LIFTING TECHNIQUE	INJURY/TWISTING OF ARM, ANKLE SPLINTER BACK ACHES	S				TRAINING/EDUCATING EMPLOYEES ON PROPER ERGONOMICS PROVIDE PROPER LIFTING EQUIPMENT WHERE NECESSARY

No:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequence	Probability	Risk Rating	
		EXCAVATION	TLB , FRONT END LOADER	PORLY MAINTAINED MACHINERY / TLB	OIL LEAKS, ACCIDENTS /INJURY DUE TO MALFUNCTION	S/E				PRE USE INSPECTIONS MUST BE DONE ROUTINE MAINTANACE AUTHORISED OPERATOR

No:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequence	Probability	Risk Rating	
				IMPROPER SHORING OR BRACING OF THE EXCAVATIONS	TRENCH MAY FALL IN AND BURY EMPLOYEES IN THE PROCESS	S				TRENCH EMERGENCY ESCAPE PROCEDURE PERFORMING EXCAVATIONS UNDER THE COMPETENT EXCAVATION SUPERVISION IMPLEMENT PROPER SHORING AND BRACING METHODS/PROCEDURES

No:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequence	Probability	Risk Rating	
				DUST	INHALLATION OF DUST CAUSING LUNG INFECTIONS AND EYE IRRITATION	H				
				NOISE FROM MACHINERY	NOISE INDUCE HEARING LOSS/ TEMPORARY THRESHOLD SHIFT	H				

No:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequence	Probability	Risk Rating	
				CONFINED SPACE ENTRY	ERGONOMICS RISK (BENDING, SQUATTING OR KNEELING FOR LONGTIME), INSUFFICIENT OXYGEN	H/S				IMPLEMENTING ERGONOMIC PROGRAMMES (AWARENESS ON ERGONOMICS), PREOPER RESPIRATORY EQUIPMENT

N o:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequ ence	Probabilit y	Risk Rating	
2.	INSTALLA TION OF OPTIC FIBRE ON POWERLI NES		EXTENDEND PLATFORMS	WORKING OF HEIGHTS	FALLING	S				COMPILE AND IMPLEMENT A FALL PROTECTION PLAN PRE INSPECTION OF SAFETY HARNESSES AND ALL EQUIPMENT USED TO SUSPEND THE EMPLOYEE ENSURE MEDICALL FITNESS OF PEOPLE WORKING ON HEIGHT TRAINING ON WORKING ON HEIGHTS

N o:	Task	Step in Process	Tool and Equipment use:	Hazards in Carrying out this Step:	Risk (Harm):	Risk Analyses:				Risk Reducing Control Measures:
						EHS	Consequ ence	Probabilit y	Risk Rating	
				WORKING UNDER THE 132 KV POWERLINES	ELECTROC UTION	S				REQUEST FOR NECESSARY ISOLATION PERMITS MAINTAIN MAXIMUM ALLOWED CLEARANCE FROM THE 132 KV LINES

ANNEXURE 3:
MANDATORY AGREEMENT (SECTION 37.2)

ARTICLE OF AGREEMENT IN TERMS OF SECTION 37(2) OF THE
OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 BETWEEN
THE CITY OF TSHWANE METROPOLITAN MUNICIPALITY

(Hereinafter referred to as the "CLIENT")

AND

.....

Herein represented by in

his/her capacity as duly

authorised by virtue of a resolution dated

Attached hereto as Annexure A of the said

(hereinafter referred to as the "CONTRACTOR").

WHEREAS the CONTRACTOR is the mandatory of the CLIENT as contemplated in an agreement in respect of

.....

Contract number

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 CLIENT.

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:

1. The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.
2. The CONTRACTOR 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 CLIENT prescribe certain arrangements and procedures, that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations and the CONTRACTOR expressly absolves the CLIENT from itself being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures as the case may be.

4. The CONTRACTOR agrees that any duly authorized officials of the CLIENT shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with this undertaking as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.
5. The CONTRACTOR shall be obliged to report forthwith to the CLIENT any investigation, 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 investigation, complaint or criminal charge as the case may be.

Thus signed at PRETORIA for and on behalf of the CLIENT on this the.....day of..... 20

AS WITNESSES:

1.

2.

.....

SIGNATURE

.....

NAME AND SURNAME

.....

CAPACITY

.....

Thus signed at PRETORIA for and on behalf of the CONTRACTOR on this the

..... day of 20

AS WITNESSES:

1.

2.

.....

SIGNATURE

.....

NAME AND SURNAME

.....

CAPACITY

.....

ANNEXURE 4: ACKNOWLEDGEMENT OF RECEIPT OHS SPECIFICATION

Acknowledgement of receipt of OHS Specification:

Name of Designer/Contractor

I, the undersigned, hereby acknowledge that I have obtained copies of OHS Specification and confirm full compliance to the conclusion of project or construction work.

Signed aton this Day of.....20.....

Signature of Designer /Contractor Manager

Date

Signature of Contractor Supervisor

Date

Witness 1 Witness 2

.

SECTION 6: SERVICE LEVEL AGREEMENTS

SECTION 6.2: INSTALLATION AND MAINTENANCE OF NETWORK AND TELEPHONE POINTS (UTP)

SECTION 6.2: INSTALLATION AND MAINTENANCE OF
NETWORK AND TELEPHONE POINTS (UTP)

SLA APPLICABLE TO:

**Installation And Maintenance of Network and
Telephone Points (UTP)**

Memorandum of Agreement entered into by and
between:

City of Tshwane Metropolitan Municipality

Herein represented by in his capacity as Municipal Manager and duly authorised thereto in terms
of a Council Resolution dated, a copy of which is attached hereto as Annexure "A".
(Hereinafter referred to as the City of Tshwane ("CoT"))

and

.....

Herein represented by in his/her capacity as..... and duly authorised
thereto in terms of a resolution dated, a copy of which is attached hereto as Annexure "B".
(Hereinafter referred to as The Contractor)

SERVICE LEVEL AGREEMENT

1. Background

- 1.1 This document comprises the SLA with the successful contractor.

2. Commercial Details

- 2.1 The contractor will take overall responsibility of the day-to-day maintenance, installation and support of the UTP network deployed.

3. Onsite Resources And Support Hours

- 3.1 It is crucial that the contractor provide CoT with the best trained, qualified human resource base with service related experience directly applicable to the services and systems deployed in Council.
- 3.2 It must be noted that the staff must be available at all times to CoT and that the contractor is not allowed to utilize the staff for other purposes unless pre-approved. Should staff not be available, suitable pre-approved replacement staff must be provided.
- 3.3 The skilled resources must be on site during the hours 7:30 to 16:00 (official CoT working hours).
- 3.4 **Standby:** At least one team must be on standby after hours and over weekends. A monthly roster must be provided with the name and contact detail of the persons on standby.
- 3.5 **Support for after hours, weekends and public holidays:** Such support will be based on the response times in accordance with the applicable SLA as well as on the core network.
- 3.6 All resources and project managers to report directly to the Deputy Director ICT Network Engineering or appointed representative.
- 3.7 All personnel to adhere to the communication protocol. The communication protocol is as follows:
- Project managers\installation and maintenance teams\all other onsite resources of the contractor to interact with project managers of the CoT.
 - All reports on SLA issues to be reported directly to the Deputy Director ICT Network Engineering or approved representative.
 - All Departmental requests for equipment/services to be referred to the Deputy Director ICT Network Engineering or approved representative.

4. Escalation Procedure

- 4.1 If faults are not cleared or no response is received, the following person at Senior Management can be contacted to escalate the call.

Name:

Tel nr:

5. **Support**

The daily management of the systems and deployed infrastructure base is critical and must be done in such a way that no functions or functionality of the deployed infrastructure base is impacted. The contractor will provide on-going monitoring, installation and maintenance and support of CoT UTP Infrastructure.

Ongoing daily activities include but are not limited to:

5.1 **Maintenance**

Requests for UTP points are logged daily at the service desk by various CoT Departments. The contractor must therefore provide quotations on a daily basis. CoT will issue orders for the approved quotations. Maintenance teams are then responsible to install the UTP points within 3 days after receipt of the official order. Testing must be concluded immediately after the UTP points were installed. The contractor must then send the quality controller to ensure that the UTP points was installed according to specification and must obtain sign-off from the client. All required documentation must be submitted before invoices will be paid.

5.2 **Project Management**

5.2.1 The Contractor to supply for each installation a dedicated project manager to ensure effective deployment of new infrastructure.

5.2.2 Projects will also be classified as follows:

- Installations of 10 or more UTP points
- New building/floor
- New cabinet
- Rewiring of older buildings

5.2.3 The following documentation will be required for all projects:

- Project Plan (and tracking thereof during installation)
- Quotes based on scoping
- All other documentation as referred to in the Tender

5.2.4 **Scopings:** All scopings to be attended to by the contractor to ensure that Council be advised on the correct solution per site and deployment thereof.

5.2.5 **Departmental/Project Meetings:** The Contractor's Project Manager to attend all meetings with regards to the associated projects.

6. **Advisory Service:**

The Contractor to provide an advisory service iro new development trends that have to be planned for. The Contractor to assist in alternative solutions when budget is not available for the suggested implementation.

7. **Additional Services**

- The Contractor to play a supporting role to CoT personnel including the service desk and third party contractors (PC Support contractors etc) when requested to do so.
- **Spares:** The Contractor will endeavor to keep adequate spares for the CoT network and will release spares when an official purchase order is received. The spares in question refer to emergency repairs.

8. **General:**

- 8.1 Normally an automated call is generated by the Service Desk System. However CoT will provide a call reference number for all maintenance/installation related services. The Contractor need to acknowledge receipt of the call, and must also close the call after attending to it.
- 8.2 CoT project managers will liaise with the Contractor's Project Manager(s) on all projects at least 1 week in advance of the project start date.
- 8.3 The Contractor to Liaise with the relevant Council personnel iro all insurance claims on the deployed equipment.
- 8.4 The Contractor must manage the account and any on-site resources in a professional manner in line with Tshwane corporate policy.
- 8.5 Change Control (When required): Proper change control must be adhered to and no changes can be made unless prior approval has been obtained. All changes and expansions must be managed in accordance with Council's existing Change Control processes and procedures in line with ITIL best practice. All new projects must be deployed adhering to these principles. Asset relocation must be done if an asset is moved via change control. Any expansion, ie where new equipment is deployed or configuration changes, requires that The Contractor must update all diagrams/drawings applicable to the environment.

9. **Meetings/Interaction:**

The Contractor must attend meetings, site scoping and high level meetings with relevant officials directly involved in this service in Council. The Contractor to hold and minute two weekly meetings with the relevant people in Tshwane to discuss any request and network related issues.

The Contractor to be involved in internal marketing as might be necessary from time-to-time.

10. **Reporting:**

Reports will be required from time to time and must be provided free of charge on for example emergency situations, major events, monthly maintenance reports etcetera.

It will be required of the successful contractor/vendor to provide monthly reports. Reporting to be relevant to service maintenance/management and projects.

The following reporting is mandatory and must be given on a monthly basis:

- Status of all maintenance calls including quotes issued, orders received (with date and order number), date call completed etcetera
- Project Summary listing of all projects and their respective status
- Any other reports required by CoT.

11. **Confidentiality:**

The Contractor is not allowed to discuss the network with third parties or to link third parties with the CoT network. A Non-Disclosure Agreement will be entered into by both parties. The Contractor may not share any information about the operations of CoT with any parties outside this agreement unless CoT gave written consent.

12. **Service Level Agreement**

The table below outlines the details pertaining to the service required and the penalties related to non-conformance.

Service Class Definition The following factors drive the cost of software support services.		
Type	Component	Description
Repair, Installation and other maintenance calls.	Time to install or repair	3 consecutive working days after receipt of official order. Penalties: R100 per day of late completion per service call capped to a maximum of R500 per service call.
	Service Window	Normal working hours Monday to Friday 7:30 - 16:00
	SLA Availability	95%
Projects	Time to install or repair	6 consecutive weeks after receipt of official order. Penalties: 0.5% of the project value per day of late completion per project to a maximum of R 5 000-00.
	Service Window	Normal working hours Monday to Friday 7:30 - 16:00

Each incident/project/call is managed and tracked throughout its service lifecycle by the Service Desk and measured; exceptions are: where calls are serviced outside of the contracted Service Level. These are to be reported on at month end, to identify failure to meet specific service level.

The SLA penalties as mentioned in the schematics and SLA's, is provided to ensure that Council does have a measurement tool to apply if Service Provider do not perform to standards. The Service Provider can provide supporting reasons why penalties should not apply and this will be taken into consideration. However, final decision will be for the discretion of the ICT Director Infrastructure to apply penalty as is, waive or reduce.

13. **Training**

13.1 Skills transfers will be done via work sessions and on-site training.

14. **Occupational Health And Safety Act**

14.1 The successful tenderer will be required to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended.

15. **SLA Agreement**

IN WITNESS WHEREOF, the CoT has executed this contract on this day of

..... at

WITNESSES:

I.

II.

CITY OF TSHWANE METROPOLITAN MUNICIPALITY

IN WITNESS WHEREOF, has executed this contract on this day of

..... at

WITNESSES:

III.

IV.

The Contractor

SECTION 6: SERVICE LEVEL AGREEMENTS

SECTION 6.3: MAINTENANCE OF THE FIBER NETWORK

SLA APPLICABLE TO:

MAINTENANCE OF THE FIBER NETWORK

Memorandum of Agreement entered into by and between:

City of Tshwane Metropolitan Municipality

Herein represented by in his capacity as Municipal Manager and duly authorised thereto in terms of a Council Resolution dated, a copy of which is attached hereto as Annexure "A".
(Hereinafter referred to as the City of Tshwane ("CoT"))

and

.....

Herein represented by in his/her capacity as..... and duly authorised thereto in terms of a resolution dated, a copy of which is attached hereto as Annexure "B".
(Hereinafter referred to as The Contractor)

Service Level Agreement

Tshwane

SERVICE LEVEL AGREEMENT

1. Background

1.1 This document comprises the SLA with the successful contractor.

2. Commercial Details

2.1 The contractor will take overall responsibility of the day-to-day maintenance, installation and support of the Fiber network.

3. Onsite Resources And Support Hours

3.1 It is crucial that the contractor provide CoT with the best trained, qualified human resource base with service related experience directly applicable to the services and systems deployed in Council.

3.2 It must be noted that the staff must be available at all times to CoT and that the contractor is not allowed to utilize the staff for other purposes unless pre-approved. Should staff not be available, suitable pre-approved replacement staff must be provided.

3.3 The resource skills must be on site during the hours 7:30 to 16:00 (official CoT working hours).

3.4 **Standby:** At least one team must be on standby after hours and over weekends. A monthly roster must be provided with the name and contact detail of the persons on standby.

3.5 **Support for after hours, weekends and public holidays:** Such support will be based on the response times in accordance with the applicable SLA as well as on the core network.

3.6 All resources and project managers to report directly to the Deputy Director ICT Network Engineering or appointed representative.

3.7 All personnel to adhere to the communication protocol. The communication protocol is as follows:

- Project managers\installation and maintenance teams\all other onsite resources of the contractor to interact with project managers of the CoT.
- All reports on SLA issues to be reported directly to the Deputy Director ICT Network Engineering or approved representative.
- All Departmental requests for equipment/services to be referred to the Deputy Director ICT Network Engineering or approved representative.

4. Escalation Procedure

4.1 If faults are not cleared or no response is received, the following person at Senior Management can be contacted to escalate the call.

Name:

Tel nr:

5. **Support**

The daily management of the systems and deployed infrastructure base is critical and must be done in such a way that no functions or functionality of the deployed infrastructure base is impacted. The contractor will provide on-going monitoring, installation and maintenance and support of CoT fiber Infrastructure.

Ongoing daily activities include but are not limited to:

5.1 **Maintenance**

Requests for fiber are logged at the service desk by various CoT Departments. The contractor must therefore provide quotations on a daily basis. CoT will issue orders for the approved quotations. Maintenance teams are then responsible to install the fiber after receipt of the official order. Testing must be concluded immediately after the fiber was installed. The contractor must then send the quality controller to ensure that the fiber was installed according to specification and must obtain sign-off from the client. All required documentation must be submitted before invoices will be paid. Maintenance of fiber entails the fixing of all fiber related problems for example repairs to underground or overhead fiber.

5.2 **Project Management**

5.2.1 The Contractor to supply for each installation a dedicated project manager to ensure effective deployment of new infrastructure.

5.2.2 Projects will also be classified as follows:

- Point to point installations between the various buildings of CoT.

5.2.3 The following documentation will be required for all projects:

- Project Plan (and tracking thereof during installation)
- Quotes based on scoping
- All other documentation as referred to in the Tender

5.2.4 **Scopings:** All scopings to be attended by the contractor to ensure that Council be advised on the correct solution per site and deployment thereof.

5.2.5 Departmental/Project Meetings: The Contractor's Project Manager(s) to attend all meetings with regards to the associated projects.

6. **Advisory Service:**

The Contractor to provide an advisory service iro new development trends that have to be planned for. The Contractor to assist in alternative solutions when budget is not available for the suggested implementation.

7. **Additional Services**

- The Contractor to play a supporting role to CoT personnel including the service desk and third party contractors (UTP or PC Support contractors etc) when requested to do so.
- **Spares:** The Contractor will endeavor to keep adequate spares for the CoT network and will release spares when an official purchase order is received. The spares in question refer to emergency repairs.

8. **General:**

- 8.1 Normally an automated call is generated by the Service Desk System. However CoT will provide a call reference number for all maintenance/installation related services. The Contractor need to acknowledge receipt of the call, and must also close the call after attending to it.
- 8.2 CoT project managers will liaise with the Contractor's Project Manager(s) on all projects at least 1 week in advance of the project start date.
- 8.3 The Contractor to Liaise with the relevant Council personnel iro all insurance claims on the deployed equipment.
- 8.4 The Contractor must manage the account and any on-site resources in a professional manner in line with City of Tshwane corporate policy.
- 8.5 Change Control (When required): Proper change control must be adhered to and no changes can be made unless prior approval has been obtained. All changes and expansions must be managed in accordance with Council's existing Change Control processes and procedures in line with ITIL best practice. All new projects must be deployed adhering to these principles. Asset relocation must be done if an asset is moved via change control. Any expansion, ie where new equipment is deployed or configuration changes, requires that The Contractor must update all diagrams/drawings applicable to the environment.

9. **Meetings/Interaction:**

The Contractor must attend meetings, site scoping and high level meetings with relevant officials directly involved in this service in Council. The Contractor to hold and minute two weekly meetings with the relevant people in Tshwane to discuss any request and network related issues.

The Contractor to be involved in internal marketing as might be necessary from time-to-time.

10. **Reporting:**

Reports will be required from time to time and must be provided free of charge on for example emergency situations, major events, monthly maintenance reports etcetera.

It will be required of the successful contractor/vendor to provide monthly reports. Reporting to be relevant to service maintenance/management and projects.

The following reporting is mandatory and must be given on a monthly basis:

- Status of all maintenance calls including quotes issued, orders received (with date and order number), date call completed etcetera
- Project Summary listing all projects and their respective status
- Any other reports required by CoT.

11. **Confidentiality:**

The Contractor is not allowed to discuss the network with third parties or to link third parties with the CoT network. A Non-Disclosure Agreement will be entered into by both parties. The Contractor may not share any information about the operations of CoT with any parties outside this agreement unless CoT gave written consent.

12. **Service Level Agreement**

The table below outlines the details pertaining to the service required and the penalties related

to non-conformance.

Service Class Definition The following factors drive the cost of software support services.		
Type	Component	Description
Repair, Installation and other maintenance calls.	Time to install or repair	Core sites: Repairs to be carried out immediately after receipt of order (same day). Other sites: Repairs to be carried out within 3 consecutive working days after receipt of order. Penalties: Core sites - R 3000-00 per day of late completion per service call logged to a maximum of R 12 000-00. Other Sites - R 1000-00 per day of late completion per service call logged to a maximum of R 5000-00.
	Service Window	Core sites: 24/7 Other sites: Normal working hours Monday to Friday 7:30 - 16:00
	SLA Availability	98% on core 95% on other sites
Projects	Time to install or repair	Allow 6 consecutive weeks for delivery of material after receipt of official order. Project to be completed within 6 consecutive weeks after delivery of material i.e. 12 weeks after receipt of official order. Penalties: 0.5% of the project value per day of late completion per project to a maximum of R 5 000-00. Please note: Should the project size validate more time, then the completion time will be agreed before the project is started.
	Service Window	Normal working hours Monday to Friday 7:30 - 16:00

Each incident/project/call is managed and tracked throughout its service lifecycle by the Service Desk and measured; exceptions are: where calls are serviced outside of the contracted Service Level. These are to be reported on at month end, to identify failure to meet specific service level.

The SLA penalties as mentioned in the schematics and SLA's, is provided to ensure that Council does have a measurement tool to apply if Service Provider do not perform to standards. The Service Provider can provide supporting reasons why penalties should not apply and this will be taken into consideration. However, final decision will be for the discretion of the ICT Director Infrastructure to apply penalty as is, waive or reduce.

Core Site List (please note the list will be amended to accommodate future sites):

- Akasia HQ
- Atteridgeville Mini Munitoria
- Bosman 9
- Bosman Fire Station
- Capital Park
- CD Wet
- Centurion Campus
- Electronic Services
- FPM
- Kungwini Main Office
- Mamelodi Mini Munitoria
- Metro Police HQ (Iscor Club)
- MidTown
- Middestad Building
- Noordvaal
- Old Raadsaal
- PDS
- Premos
- Sammy Marks
- SANAB
- SITA Centurion
- Soshanguve Block F
- Temba CC
- Tshwane House
- Waltloo

13. Training

13.1 Skills transfers will be done via work sessions and on-site training.

14. Occupational Health And Safety Act

14.1 The successful tenderer will be required to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended.

15. **SLA Agreement**

IN WITNESS WHEREOF, the CoT has executed this contract on this day of

..... at

WITNESSES:

V.

VI.

CITY OF TSHWANE METROPOLITAN MUNICIPALITY

IN WITNESS WHEREOF, has executed this contract on this day of

..... at

WITNESSES:

VII.

VIII.

The Contractor

SECTION 6: SERVICE LEVEL AGREEMENTS

SECTION 6.4: PUBLIC WI-FI NETWORK

SECTION 6.4: PUBLIC WI-FI NETWORK

1. ACTIVITIES/EQUIPMENT ESSENTIAL TO WI-FI NETWORK

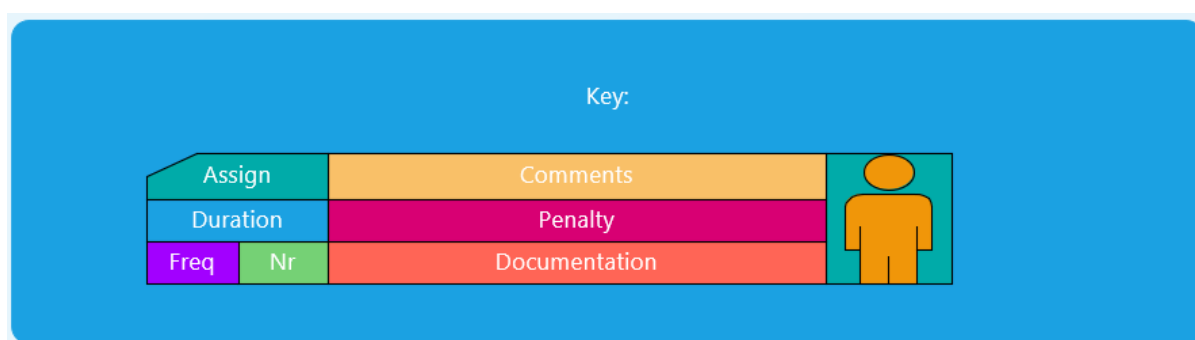
Any other activity or equipment, which is not explicitly covered in this document but is essential, as part of the operations and Maintenance of the Wi-Fi network shall also be performed by the appointed contractor. In case of any dispute in this regard, the decision of CoT shall prevail. Please note the hours below denote consecutive hours.

2. PENALTIES ASSOCIATED WITH ISO PROCESSES

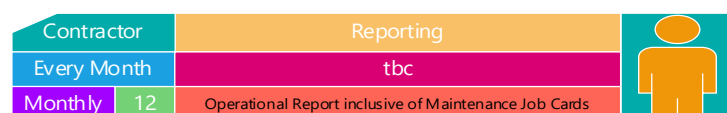
There are several ISO processes that were discussed earlier in this Tender document:

- Installation of new equipment
- Maintenance of equipment
- Replace equipment
- Transfer/Dispose Equipment
- Security

Penalties will apply as indicated on the diagram of the ISO process. The key is indicated on the ISO process.



As an example:



The process is assigned to the contractor and involves monthly providing an operational report and the associated maintenance job cards. As this process is monthly, 12 reports are required during the year.

Penalty capped amounts are also indicated on the ISO process.

Capped penalties:
Penalties will be capped at a monthly rate tbc

3. OPERATIONAL/MAINTENANCE SLA

The table below outlines the details pertaining to the service required and the penalties related to non-conformance.

Severity	Definition	Mean Time to Respond	Mean Time to Resolve	Support	SLA Requirement
1	Major Business impact Any service that is completely down and has a critical impact on business services. <ul style="list-style-type: none"> Core Network/Internet down 	Immediate to 30 minutes	Immediate to 4 hours	8 x 5 support (weekdays)	95% of all incidents to be resolved within SLA
2	Moderate business impact. Any fault or outage that is causing COT or any of his external parties' degradation of performance. <ul style="list-style-type: none"> High Site/Sector of High site is down Core site is down 	4 hours to 8 hours	2 consecutive business days	8 x 5 support (weekdays)	92% of all incidents to be resolved within SLA
3	Minor business impact. Change requests. Low or no impact on business services. <ul style="list-style-type: none"> FIZ/component of FIZ is down 	4 hours to 24 hours	5 consecutive business days	8 x 5 support (weekdays)	90% of all incidents to be resolved within SLA

Penalties

Payment will include a structure whereby penalties are levied against non-performance by the service provider. The following rules are set to apply:

- Services will be delivered in accordance with the Service Levels proposed and accepted, depending on quality and affordability.
- Should the specified service levels thus not be met as indicated, the Service Provider will be liable for penalties against the fees payable for monthly services.

- Penalties will be incurred monthly at a rate as indicated in Table below:

SLA Definition	Penalty	Capped
Major Business impact	R 400 per hour on a per incident basis (no penalty will apply if resolved within Mean Time To Resolve)	R 5 000 per incident provided that the applicable incident is resolved the next business day. Failure to resolve the next business day will imply that the penalty will not be capped.
Moderate business impact	R 300 per hour on a per incident basis (no penalty will apply if resolved within Mean Time To Resolve)	R 4000 per incident provided that the applicable incident is resolved within 4 consecutive business days. Failure to resolve the next business day will imply that the penalty will not be capped.
Minor business impact	R 200 per hour on a per incident basis (no penalty will apply if resolved within Mean Time To Resolve)	R 2000 per incident

- Evidence: The service provider will provide availability statistics via the Network Monitoring Tool on a monthly basis thus indicating availability of all the components. This need to relate to the monthly SLA report.
- The SLA penalties as mentioned in the schematics and SLA's, is provided to ensure that Council does have a measurement tool to apply if Service Provider do not perform to standards. The Service Provider can provide supporting reasons why penalties should not apply and this will be taken into consideration. However, final decision will be for the discretion of the ICT Director Infrastructure to apply penalty as is, waive or reduce.

3. EXPANSION OF THE PUBLIC WI-FI NETWORK

Wi-Fi Offload Solution SLA

Item	Description	SLA	Severity level for non-adherence and penalty
1.	Establish NOC/Service desk	3 months after appointment	F
2.	Install FIZ's in accordance with quarterly targets.	Meet quarterly target	E

PENALTIES

If the contractor fails to restore the fault within the time limit specified in clause above, the following penalties shall be applicable:

Severity Level	Penalty (There is 8 business hours available per business day)
A	R 500-00 per business hour
B	R 1 000-00 per business hour
C	R 2 000-00 per business hour
D	R 500-00 per business day
E	R 1 000-00 per business day
F	R 2 000-00 per business day

The above penalties shall be applicable if the failure/disruption is due to the fault on part of the contractor. The contractor shall not be penalized if the failure is due to fault on account of CoT. The successful bidder shall provide SLA measurement tool for Operation and Monitoring the Wi-Fi offload solution, Central equipment and FIZ location uptime and also the service availability. Report on above SLA items shall be submitted on monthly basis.

Evidence for above activities will be the signed-off Job Cards.

4. GENERAL

Penalties will be deducted, post reconciliation of statistics by CoT and the Service Provider, from future payments. Should the Service Provider fail to meet its SLA targets for three (3) consecutive months, the COT reserves the right to cancel the contract with one (1) month written notice.

5. CHERRY PICKER(S)

The contractor must own or have access to a cherry picker(s). Some FIZ's are in locations where a normal ladder will not suffice and in addition this will also assist with asset verification processes.

6. SLA AGREEMENT

IN WITNESS WHEREOF, the CoT has executed this contract on this day of

..... at

WITNESSES:

IX.

X.

CITY OF TSHWANE METROPOLITAN MUNICIPALITY

IN WITNESS WHEREOF, has executed this contract on this day of

..... at

WITNESSES:

XI.

XII.

The Contractor

PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE CITY OF TSHWANE MUNICIPALITY					
BID NUMBER:	GICT 02 2025/26	CLOSING DATE:	18 September 2025	CLOSING TIME:	10:00
DESCRIPTION	TENDER FOR THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE PUBLIC WI-FI NETWORK AND THE MAINTENANCE OF THE FIBRE NETWORK AS AND WHEN REQUIRED, FOR A PERIOD OF THREE (3) YEARS.				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN
THE BID BOX SITUATED AT (STREET ADDRESS)

Tshwane House					
Supply Chain Management					
320 Madiba Street					
Pretoria CBD					
0002					
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	<input type="checkbox"/> Yes <input type="checkbox"/> No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	<input type="checkbox"/> Yes <input type="checkbox"/> No	
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER PART B:3]	

/SERVICES /WORKS OFFERED?		GOODS /SERVICES /WORKS OFFERED?	
TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID PRICE	R
SIGNATURE OF BIDDER	DATE	
CAPACITY UNDER WHICH THIS BID IS SIGNED			
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		TECHNICAL INFORMATION MAY BE DIRECTED TO:	
DEPARTMENT	Supply Chain Management	DEPARTMENT	Shared Services: ICT Division
CONTACT PERSON	Relebogile Malatswane	CONTACT PERSON	LeRoy Olivier
TELEPHONE NUMBER	012 358 2735	TELEPHONE NUMBER	012 358 4994
EMAIL ADDRESS	RelebogileM@tshwane.gov.za	EMAIL ADDRESS	siphomadh@tshwane.gov.za

PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION	
1.1	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2	ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE
1.3	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
2. TAX COMPLIANCE REQUIREMENTS	
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3	APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN 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 .
2.4	FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.
2.5	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.6	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.7	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS	
3.1	IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? YES <input type="checkbox"/> NO <input type="checkbox"/>

- | | | |
|-----|--|--|
| 3.2 | DOES THE ENTITY HAVE A BRANCH IN THE RSA? | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 3.3 | DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 3.4 | DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? | YES <input type="checkbox"/> NO <input type="checkbox"/> |
| 3.5 | IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? | YES <input type="checkbox"/> NO <input type="checkbox"/> |

IF THE ANSWER IS “NO” TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID. NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:



MBD 3.1

PRICING SCHEDULE: FIRM PRICES (PURCHASES)

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder.....	Bid Number
Closing Time	Closing Date

OFFER TO BE VALID FOR DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
----------	----------	-------------	--

- Required by:
- At:
- Brand and Model
- Country of Origin
- Does the offer comply with the specification(s)? *YES/NO
- If not to specification, indicate deviation(s)
- Period required for delivery
*Delivery: Firm/Not firm
- Delivery basis

Note: All delivery costs must be included in the bid price, for delivery at the prescribed destination.

- ** “all applicable taxes” includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.
- * Delete if not applicable

PRICING SCHEDULE: NON-FIRM PRICES (PURCHASES)

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder	Bid number
Closing Time	Closing Date

OFFER TO BE VALID FOR 90 DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
----------	----------	-------------	--

- Required by:
- At:
- Brand and model
- Country of origin
- Does the offer comply with the specification(s)? *YES/NO
- If not to specification, indicate deviation(s)
- Period required for delivery
- Delivery: *Firm/Not firm
- ** "all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.
- * Delete if not applicable

PRICE ADJUSTMENTS

A. NON-FIRM PRICES SUBJECT TO ESCALATION

1. IN CASES OF PERIOD CONTRACTS, NON FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES
2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1 - V)Pt \left(D1 \frac{R1t}{R1o} + D2 \frac{R2t}{R2o} + D3 \frac{R3t}{R3o} + D4 \frac{R4t}{R4o} \right) + VPt$$

Where:

- Pa = The new escalated price to be calculated.
- (1-V) Pt = 85% of the original bid price. **Note that Pt must always be the original bid price and not an escalated price.**
- D1, D2.. = Each factor of the bid price eg. labour, transport, clothing, footwear, etc. The total of the various factors D1,D2...etc. must add up to 100%.
- R1t, R2t..... = Index figure obtained from new index (depends on the number of factors used).
- R1o, R2o = Index figure at time of bidding.
- VPt = 15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your bid price:

Index..... Dated.....	Index..... Dated.....	Index..... Dated.....
Index..... Dated.....	Index..... Dated.....	Index..... Dated.....

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. eg. Labour, transport etc.)	PERCENTAGE OF BID PRICE

B. PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

- Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

- Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

ADJUSTMENT PERIODS	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE
1 st Adjustment	After 12 calendar months
2 nd Adjustment	After 24 calendar months

NB: Unless prior approval has been obtained from Supply Chain Management, no adjustment in contract prices will be made

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.

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



DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

- 1 Are you by law required to prepare annual financial statements for auditing? ***YES / NO**

1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....

.....
- 2 Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO**

2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days. ***YES / NO**

2.2 If yes, provide particulars.

.....

.....

.....

.....
- 3 Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract? ***YES / NO**

3.1 If yes, furnish particulars

.....

.....
- 4.1 Will any portion of goods or services be sourced from outside ***YES / NO**

the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?

4.1 If yes, furnish particulars

.....

.....

CERTIFICATION

**I, THE UNDERSIGNED (NAME)
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM
IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD
THIS DECLARATION PROVE TO BE FALSE.**

.....

Signature

.....

Date

.....

Position

.....

Name of Bidder

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

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

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

1. GENERAL CONDITIONS

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

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

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

a) The applicable preference point system for this tender is the 90/10 preference point system.

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

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

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

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	90
SPECIFIC GOALS	10
TOTAL POINTS FOR PRICE AND SPECIFIC GOALS	100

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

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

2. DEFINITIONS

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \\ \mathbf{Ps} = \mathbf{80} \left(\mathbf{1} - \frac{\mathbf{Pt} - \mathbf{Pmin}}{\mathbf{Pmin}} \right) & \mathbf{or} & \mathbf{Ps} = \mathbf{90} \left(\mathbf{1} - \frac{\mathbf{Pt} - \mathbf{Pmin}}{\mathbf{Pmin}} \right) \end{array}$$

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \\ \mathbf{Ps} = \mathbf{80} \left(\mathbf{1} + \frac{\mathbf{Pt} - \mathbf{Pmax}}{\mathbf{Pmax}} \right) & \mathbf{or} & \mathbf{Ps} = \mathbf{90} \left(\mathbf{1} + \frac{\mathbf{Pt} - \mathbf{Pmax}}{\mathbf{Pmax}} \right) \end{array}$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{max} = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

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

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

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

N.B For points to be allocated as per above the tenderers will be required to submit proof of documentation as evidence for claims made. Any tenderer that does not submit evidence as stated in the bid document to claim applicable points will be allocated zero points.

Specific goals	90/10 preference point system	Points Claimed (To be completed by the bidder)
BB-BEE score of companies <ul style="list-style-type: none"> • Level 1 • Level 2 • Level 3 • Level 4 • Level 5 • Level 6 • Level 7 • Level 8 • Non-compliant 	<ul style="list-style-type: none"> • 4 Points • 3.5 Points • 3 Points • 2.5 Points • 2 Points • 1.5 Points • 1 Point • 0.5 Points 0 Points	
EME and/ or QSE	1 Point	
At least 51% of Women-owned companies	1 Point	
At least 51% owned companies by People with disability	1 Point	
At least 51% owned companies by Youth	1 Point	
Local Economic Participation <ul style="list-style-type: none"> • City of Tshwane • Gauteng • National 	2 Points 1 Point 1 Point	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

.....

4.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are 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 paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (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) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed

.....

SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

MBD 7.2

CONTRACT FORM: RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

1. I hereby undertake to render services described in the attached bidding documents to (name of the institution)..... in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number **GICT 02 2025/26** at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Filled in task directive/proposal;
 - Preference claims for specific goals in terms of the Preferential Procurement Regulations 2022;
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.
6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2

DATE:

CONTRACT FORM: RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I..... in my capacity as accept your bid under reference number dated..... for the rendering of services indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating service delivery instructions is forthcoming.
3. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	B-BBEE STATUS LEVEL OF CONTRIBUTION

4. I confirm that I am duly authorised to sign this contract.

SIGNED AT ON

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP

WITNESSES

1
2

DATE:

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Municipal Bidding Document must form part of all bids 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 bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the municipality's / municipal entity's supply chain 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. willfully 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 (No 12 of 2004).
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	<p>Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?</p> <p>(Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied).</p> <p>The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.</p>	<p>Yes</p> <p><input type="checkbox"/></p>	<p>No</p> <p><input type="checkbox"/></p>
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?	<p>Yes</p> <p><input type="checkbox"/></p>	<p>No</p> <p><input type="checkbox"/></p>

	The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.		
4.2.1	If so, furnish particulars:		
4.3	Was the bidder 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"/>
4.3.1	If so, furnish particulars:		
4.4	Does the bidder 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"/>
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder 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"/>
4.7.1	If so, furnish particulars:		

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME)
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM
TRUE AND CORRECT.**

**I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION
MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE
FALSE.**

.....
Signature

.....
Date

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ 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 bidding (or bid rigging).² Collusive bidding is a *pe 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 bid of any bidder if that bidder 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 bidding process or the execution of the contract.
- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

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

² Bid rigging (or collusive bidding) 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 bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid: **GICT 02 2025/26**

TENDER FOR THE INSTALLATION AND MAINTENANCE OF NETWORK- AND TELEPHONE POINTS AND THE PUBLIC WI-FI NETWORK AND THE MAINTENANCE OF THE FIBER NETWORK AS AND WHEN REQUIRED, FOR A PERIOD OF THREE (3) YEARS

in response to the invitation for the bid made by:

CITY OF TSHWANE MUNICIPALITY

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

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

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.

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.



CITY OF
TSHWANE

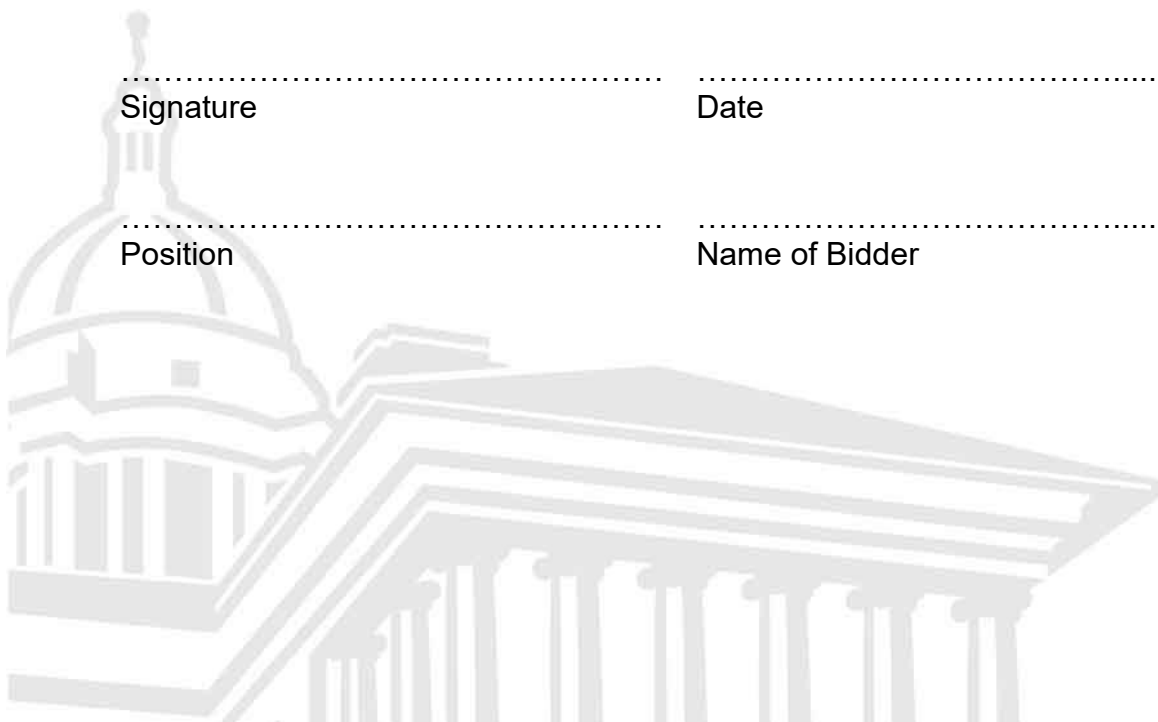
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
- (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder



THE NATIONAL TREASURY

Republic of South Africa



GOVERNMENT PROCUREMENT

GENERAL CONDITIONS OF CONTRACT

July 2010

GOVERNMENT PROCUREMENT

GENERAL CONDITIONS OF CONTRACT

July 2010

NOTES

The purpose of this document is to:

- (i) Draw special attention to certain general conditions applicable to government bids, contracts and orders; and
- (ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.

In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.

- The General Conditions of Contract will form part of all bid documents and may not be amended.
- Special Conditions of Contract (SCC) relevant to a specific bid, should be compiled separately for every bid (if applicable) and will supplement the General Conditions of Contract. Whenever there is a conflict, the provisions in the SCC shall prevail.

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General Conditions of Contract

1. Definitions

1. The following terms shall be interpreted as indicated:
 - 1.1 “Closing time” means the date and hour specified in the bidding documents for the receipt of bids.
 - 1.2 “Contract” means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
 - 1.3 “Contract price” means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
 - 1.4 “Corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
 - 1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
 - 1.6 “Country of origin” means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
 - 1.7 “Day” means calendar day.
 - 1.8 “Delivery” means delivery in compliance of the conditions of the contract or order.
 - 1.9 “Delivery ex stock” means immediate delivery directly from stock actually on hand.
 - 1.10 “Delivery into consignees store or to his site” means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
 - 1.11 "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.
 - 1.12 ”Force majeure” means an event beyond the control of the supplier and not involving the supplier’s fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
 - 1.13 “Fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

- 1.14 “GCC” means the General Conditions of Contract.
- 1.15 “Goods” means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 “Imported content” means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.
- 1.17 “Local content” means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.
- 1.18 “Manufacture” means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.19 “Order” means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 “Project site,” where applicable, means the place indicated in bidding documents.
- 1.21 “Purchaser” means the organization purchasing the goods.
- 1.22 “Republic” means the Republic of South Africa.
- 1.23 “SCC” means the Special Conditions of Contract.
- 1.24 “Services” means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.
- 1.25 “Written” or “in writing” means handwritten in ink or any form of electronic or mechanical writing.

1. Application

- 2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.
- 2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.
- 2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

- 3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid.
Where applicable a non-refundable fee for documents may be charged.

	3.2	With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za
4. Standards	4.1	The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.
5. Use of contract documents and information inspection.	5.1	The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.
	5.2	The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.
	5.3	Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.
	5.4	The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.
6. Patent rights	6.1	The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.
7. Performance security	7.1	Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.
	7.2	The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
	7.3	The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms: <ul style="list-style-type: none"> (a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or (b) a cashier's or certified cheque
	7.4	The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.
8. Inspections, tests and analyses	8.1	All pre-bidding testing will be for the account of the bidder.

- 8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department.
- 8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.
- 8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.
- 8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.
- 8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.
- 8.7 Any contract supplies may on or after delivery be inspected, tested or analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.
- 8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

- 9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

- 10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.
- 10.2 Documents to be submitted by the supplier are specified in SCC.

11. Insurance	11.1	The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.
12. Transportation	12.1	Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.
13. Incidental services, services	13.1	<p>The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:</p> <ul style="list-style-type: none"> (a) performance or supervision of on-site assembly and/or commissioning of the supplied goods; (b) furnishing of tools required for assembly and/or maintenance of the supplied goods; (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods; (d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and (e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.
	13.2	Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.
14. Spare parts	14.1	<p>As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:</p> <ul style="list-style-type: none"> (a) such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and (b) in the event of termination of production of the spare parts: <ul style="list-style-type: none"> (i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and (ii) following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.
15. Warranty	15.1	The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.
	15.2	This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the

final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

- | | |
|---|--|
| 15.3 | The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty. |
| 15.4 | Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser. |
| 15.5 | If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract. |
| 16. Payment | <p>16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.</p> <p>16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfillment of other obligations stipulated in the contract.</p> <p>16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.</p> <p>16.4 Payment will be made in Rand unless otherwise stipulated in SCC.</p> |
| 17. Prices | 17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be. |
| 18. Contract | 18.1 No variation in or modification of the terms of the contract shall be made amendments except by written amendment signed by the parties concerned. |
| 19. Assignment | 19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent. |
| 20. Subcontracts | 20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract. |
| 21. Delays in the supplier's performance | <p>21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.</p> <p>21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.</p> |

- 21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.
- 21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.
- 21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.
- 21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without canceling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.
- 22. Penalties**
- 22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.
- 23. Termination for default**
- 23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:
- (a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
 - (b) if the Supplier fails to perform any other obligation(s) under the contract; or
 - (c) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.
- 23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.
- 23.4 If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated

fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.

- 23.5 Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.
- 23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:
- (i) the name and address of the supplier and / or person restricted by the purchaser;
 - (ii) the date of commencement of the restriction
 - (iii) the period of restriction; and
 - (iv) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

- 23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

- 24.1 When, after the date of bid, provisional payments are required, or antidumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him

25. Force Majeure

- 25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.
- 25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all

		reasonable alternative means for performance not prevented by the force majeure event.
26. Termination for insolvency	26.1	The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.
27. Settlement of Disputes	27.1	If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
	27.2	If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
	27.3	Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
	27.4	Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.
	27.5	Notwithstanding any reference to mediation and/or court proceedings herein, <ul style="list-style-type: none"> (a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and (b) the purchaser shall pay the supplier any monies due the supplier.
28. Limitation of liability	28.1	Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6; <p>the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and</p> <p>the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.</p>
29. Governing language	29.1	The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.
30. Applicable law	30.1	The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.
31. Notices	31.1	Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice

- 31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.
- 32. Taxes and duties**
- 32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
- 32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
- 32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.
- 33. National Industrial Participation (NIP) Programme**
- 33.1 The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation
- 34. Prohibition of Restrictive practices**
- 34.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder (s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).
- 34.2 If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.
- 34.3 If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

Js General Conditions of Contract (revised July 2010)

