

ANNEXURE A – BILL OF MATERIALS & SPECIFICATIONS

1. BILL OF MATERIALS

- Bidders shall adhere to and complete the costing model as provided below.
- All pricing must be provided in ZAR.
- Refer to section 23.3.4 of the tender document for the details of the different phases of this project.

List of Phases	Year 1		Year 2	Year 3	Total
	Implementation	Network Maintenance & Support	Network Maintenance & Support	Network Maintenance & Support	
Phase 0 - Programme Engagement & Scoping (Maximum duration: 1 month)					
Phase 1 – Block 9 and 12 (Maximum duration: 2 months)					
Phase 2 – Block 6, 7 and 8 (Maximum duration: 1 month)					
Phase 3 – Block 11, EMS and Bays 1-7 (Maximum duration: 1 month)					
Phase 4 – Jumbo Store, Jumbo Bay,					

Waste Yard, Bus Sherd, Main Gate, Sub Stations, Security & Goods Receiving. (Maximum duration: 1 month)					
Phase 5 – Club House and Outside WIFI Coverage (Maximum duration: 1 month)					
Phase 6 - Supply, Installation and Configuration of Secondary Data Line					
Total Network Infrastructure Upgrade Services (excluding VAT)					
VAT					
Total Network Infrastructure Upgrade Services (including VAT)					

*Costs for network maintenance and support are expected once Phase 1 is completed. Costs for year 2 and year 3 to cover the network maintenance and support services.

Name of bidder:

Signature:

Date:

The below Bill of Material (BOM) is categorised into various buildings and other outside areas within the Mintek Campus:

Location Description	Part Description & Estimated Quantities
Block 9 including the Primary Data Centre	• 1 X Core Switch • 1 X WLAN Controller • 1 X Policy Engine Server • 1 X SDN Management Server/ NMS • 1 X Automated Security Policy Management Platform • 4 X 48 Port Access Switches • 77 X Access Points • 2 X QSFP+/DAC/STACKING • 32 X SFP+ • 4 X SFP+ DAC 1M/STACKING • 48 Cat 6 Network Points
Block 12 including the Secondary Data Centre	• 35 X Access Points • 3 X 48 Port Access Switches • 3 X DAC SFP+ 10GB 1M/STACKING • 34 X SFP+ • 1 X Core Switch • 1 X WLAN Controller • 1 X Policy Engine Server • 1 X SDN Management Server/ NMS • 2 X QSFP • 10 Cat 6 Network Points
Block 6	• 4 X 48 Port Switches • 47 X Access Points • 8 X SFP+ • 18 Cat 6 Network Points
Block 7	• 3 X 48 Port Switches • 45 X Access Points • 6 X SFP+ • 44 Cat 6 Network Points
Block 8	• 3 X 48 Ports Switches • 46 X Access Points • 6 X SFP+ • 35 Cat 6 Network Points

Location Description	Part Description & Estimated Quantities
Block 11	• 51 X Access Points • 3 X 48 Ports Switches • 6 X SFP+ • 46 X Cat 6 Network points
Edge Switches	• X31
Transceivers	• 4 X 40GB for connecting Core switches together • 112 X SMF 10G (connecting Core and Edge switches)
Other building blocks/Offices	• 70 X Access Points • 52 X Network points
Indoors Access Points	• 372 X Indoors - Wi-Fi 6 (802.11ax) access points across all the blocks
Outdoors	• 46 X Outdoors – Access points • 38 Pole mounted outdoors access points • 40 000 metres fibre cables for the pole mounted outdoor access points • 10 X 48 Port Switches • 8 Outdoor access points mounted on the Mintek buildings • 20 X SFP+
Secondary Internet Line	• 1 X 1GB Enterprise Fibre

2. EQUIPMENT SPECIFICATIONS

Equipment List	Specifications
Core Switch	• Downlinks total Ports: 48 X 10/25Gb Fibre Ports • Uplink configuration: 2 X /25/40/100Gb Fibre • Minimum Switching capacity: 2.8 Tbps • Minimum Forwarding rate: 1440 Mpps • Stackings, through dedicated or Uplinks Fibre ports • SDN Feature: Yes
Edge Switch	• Downlinks total Ports: 48 10/100/1000 PoE++ copper ports • Uplink configuration: 4 X 10G Fibre • Minimum Switching capacity: 1700 Gbps • Minimum Forwarding rate: 1288 Mpps • Stacking: Yes, through dedicated or Uplinks Fibre ports • SDN Feature: Yes

Equipment List	Specifications
	• Power over Ethernet: Yes /POE++
WLAN Controller	• Minimum number of access points: 500 • Maximum number of clients: 10000 • Minimum throughput: 40 Gbps • Fixed uplinks: 2x 10G/ Multigigabit fibre • Deployment modes: Centralised
Indoor Access Points	• A next-generation indoor Wi-Fi 6 (802.11ax) Access Point (AP), which supports four/ six/ eight spatial streams and features built-in Antennas. The AP should support 2.4 bands and 5Ghz band simultaneously. • Wi-Fi 6 certified • Indoor, dual radio, 5GHz 802.11ax 4x4/8x8 MIMO and • 2.4GHz 802.11ax 2x2/4X4 MIMO • IoT-ready Bluetooth 5 and Zigbee support • Ceiling/wall Mounting brackets • Supports all mandatory and several optional 802.11ax • Features • Data rates of 4.8Gbps/Higher in the 5GHz band and • Minimum 575Mbps in the 2.4GHz band • Support standalone mode, controller or cloud-based
Outdoor Access Points	• A next generation outdoor Wi-Fi 6 (802.11ax) Access Point (AP), which supports four/ six spatial streams. • The AP should support 2.4 band and 5Ghz band simultaneously. • Wi-Fi 6 certified • Outdoor, dual radio, 5GHz 802.11ax 4x4 MIMO and 2.4GHz 802.11ax 2x2/4X4 MIMO • IoT-ready Bluetooth 5 and Zigbee support • Support External Antenna • Mounting brackets • Supports all mandatory and several optional 802.11ax features • Support standalone mode, controller or cloud-based • Digging and casting of 500mm x 500mm x400 mm concrete plinth for each AP Pole • 8 Port LC Fibre Scotch Box for each Kiosk Enclosure • Each Patch Cord UTP 568A/B C6 - 7m Grey Each

Equipment List	Specifications
	• 4 CR Multi Loose Tube (HDD) 9/125 Per metre • Supply Kabelflex Dia 110mm Per metre • Supply Kabelflex Dia 50mm Per Metre • Galvanized Round Pole 4.5m With Stud 600m each • 450mm X 600mm X 68kg Medium Duty Man-Hole Frame & Lid each • 450mm X 600mm X 68kg Medium Duty Man-Hole Construction & Building Material Each • Enclosure Kiosk IP65 Rated 1000 x 800 x 320 Grey ACDC Each • 16mm Earth Cable Green / Yellow Per metre • Single Mode Convertor with Single Mode SFP each • Earth Rod 1.2m including Grounding clamp Each • All links will be from Building 9000 and 12000 Server Room Core Switch and the estimated average Fibre length is 500 metres maximum
Indoor Access Points	• Wi-Fi 6 certified • Indoor, dual radio, 5GHz 802.11ax 4x4/8x8 MIMO and • 2.4GHz 802.11ax 2x2/4X4 MIMO • IoT-ready Bluetooth 5 and Zigbee support • Ceiling/wall Mounting brackets • Supports all mandatory and several optional 802.11ax • Features • Data rates of 4.8Gbps/Higher in the 5GHz band and • Minimum 575Mbps in the 2.4GHz band • Support standalone mode, controller or cloud-based
Policy Identity Server	• Minimum number of clients/Endpoints is 10 000 • Fixed uplinks are 2x 10G/Multigigabit fibre • Deployment modes are Centralized
Software Defined Network Management Solution with Security Policy Management function	• A cloud-based Network Management system to manage the proposed Network solution. • Support Secure, policy-based automation. • Provides intelligent services for application recognition, traffic analytics, traffic prioritization, and steering. • Provides zero touch deployment for automation of all the network administration activities.

Equipment List	Specifications
	• Offers a complete network visibility for the entire wired, wireless, and WAN network that is managed on a single entity. • A solution that facilitates access delivery across wired, wireless, and VPN connections. • An automated platform that simplifies the network access management by implementing software-defined segmentation based on Mintek roles. • A platform that provides access consistently and efficiently by centralising and unifying network access policy management.