



T UJ 31/2025: IMBEWU RESIDENCE WI-FI UPGRADE PROJECT

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1. DEFINITIONS AND ABBREVIATIONS

- 1.1. **ICS:** Information and Communications Systems
- 1.2. **IT:** Information Technology
- 1.3. **Wi-Fi:** Wireless Fidelity
- 1.4. **BRS:** Business Requirements Specification
- 1.5. **AP:** Access Point
- 1.6. **RF:** Radio Frequency
- 1.7. **UTP:** Unshielded Twisted Pair
- 1.8. **VLAN:** Virtual Local Area Network
- 1.9. **SSID:** Service Set Identifier
- 1.10. **WPA3:** Wi-Fi Protected Access 3
- 1.11. **SNR:** Signal-to-Noise Ratio
- 1.12. **RJ:** Registered Jack
- 1.13. **CAT6:** Category 6 (Ethernet cable standard)
- 1.14. **UOM:** Unit of Measure
- 1.15. **BOQ:** Bill of Quantities
- 1.16. **PO:** Purchase Order
- 1.17. **SLA:** Service Level Agreement
- 1.18. **HCIA:** Huawei Certified ICT Associate
- 1.19. **HCIP:** Huawei Certified ICT Professional
- 1.20. **HCIE:** Huawei Certified ICT Expert
- 1.21. **WLAN:** Wireless Local Area Network
- 1.22. **OTDR:** Optical Time-Domain Reflectometer
- 1.23. **QSFP:** Quad Small Form-factor Pluggable
- 1.24. **SFP:** Small Form-factor Pluggable

2. EXECUTIVE SUMMARY

The University of Johannesburg (UJ)'s Information and Communications Systems (ICS) department is committed to delivering stable, high-performance IT and network services that enhance the overall academic experience and student well-being. Reliable wireless connectivity is a critical enabler of learning, communication, and digital access, particularly in student residences where students rely heavily on internet access for academic and personal use.

The Soweto Imbewu Student Residence has been identified as a high-priority area for improving Wi-Fi performance, including coverage gaps, weak signal strength, and inconsistent connectivity. These issues directly impact students' ability to access online resources, participate in virtual learning environments, and stay digitally connected. This Business Requirements Specification (BRS) outlines the need for a focused initiative to diagnose and resolve Wi-Fi connectivity challenges within Imbewu.

The objective is to assess the current wireless infrastructure, identify technical and environmental causes of degraded performance, and implement a fit-for-purpose solution that ensures seamless, high-speed, and secure wireless coverage throughout the residence.

Through this targeted engagement, UJ aims to create a digitally inclusive environment that supports equitable access to academic resources and reflects the institution's broader commitment to technological excellence and student success.

We request that suppliers submit proposals as per the specifications and requirements stated below.

3. OBJECTIVES

The objective of this document is to define the technical and operational requirements for improving Wi-Fi connectivity within the Soweto Imbewu Student Residence at the University of Johannesburg. The primary goal is to identify optimal Access Point (AP) placement locations and to implement a solution that involves both the procurement of new APs and the relocation or reuse of existing APs to improve wireless signal strength and reliability particularly within individual rooms.

The structural design of the residence with thick concrete walls and sealed doors, wireless signal strength and quality are significantly degraded, resulting in poor connectivity for students. This document outlines the scope of work, technical considerations, and expected deliverables to guide the selection of a qualified service provider who can assist UJ in resolving these wireless signal issues through proper AP design, hardware recommendations, and implementation support.

In addition to improving indoor wireless coverage, the scope also includes addressing Wi-Fi signal quality in surrounding outdoor areas, ensuring continuous and stable connectivity for students in open communal spaces.

The ultimate objective is to deliver reliable, high-speed, and consistent Wi-Fi performance across all areas of the residence, supporting a digitally conducive living and learning environment for students.

4. SCOPE OF WORK

4.1. Primary Requirement

This scope of work outlines the required activities for improving Wi-Fi connectivity at **Soweto Imbewu Student Residence**, addressing both indoor and immediate outdoor coverage. The service provider will be responsible for planning, supplying, installing, and configuring all necessary network components and infrastructure to deliver reliable, high-performance wireless connectivity to all students.

- 4.1.1. Access Point Deployment and Optimization.
- 4.1.2. Relocation of Existing Access Point.
- 4.1.3. Network Switch Installation.
- 4.1.4. Cabling & Rewiring.
- 4.1.5. Construction & Physical Installation.
- 4.1.6. Configuration, Commissioning, and decommissioning.
- 4.1.7. Professional Services
- 4.1.8. Outdoor Area Coverage.
- 4.1.9. Ongoing Technical Support.
- 4.1.10. AP's Physical Security

4.2. Detailed Scope of Work

The successful service provider must be able to adhere to the following key requirements.

4.2.1. Access Point Deployment and Optimization

- Install new Access Points (APs) inside each student room to ensure strong, localized Wi-Fi coverage and eliminate signal degradation caused by concrete walls and sealed doors.
- Reposition existing corridor APs, where retained, to optimal central ceiling locations to maximize signal distribution along corridors and in shared areas.
- Develop a new AP layout and placement plan that considers signal overlap, channel reuse, and high-density performance standards.
- Develop a new AP layout and placement plan that follows a zig-zag placement strategy, positioning APs alternately across rooms on each floor to minimize co-channel and adjacent-channel interference. The layout must also consider inter-floor signal propagation and the proximity of APs in neighboring residence buildings.
- AP placement within rooms must be optimized to avoid direct signal collision with adjacent and vertically aligned rooms, ensuring efficient channel reuse, improved signal containment, and compliance with high-density performance standards.
- Conduct final AP calibration and RF tuning post-installation to minimize interference and maximize throughput.

4.2.2. Relocation of Existing Corridor APs

- Review all currently installed corridor APs across all buildings and floors to assess their suitability based on updated layout and coverage objectives.
- Each floor corridor has a minimum of 1 APs to maximum of 3 APs on average.

- Relocate retained APs to central ceiling positions within corridors or shared areas, avoiding end-of-corridor placements that limit effective signal reach.
- Align relocated APs with the new zig-zag layout strategy to ensure they complement in-room deployments without causing overlapping interference.
- Where corridor APs are no longer suitable or necessary, decommission or repurpose them for use in other communal or transitional spaces (e.g., kitchen, common areas).
- Ensure all relocated APs are included in RF tuning and performance validation tests to confirm optimal positioning and integration with the overall wireless design.

4.2.3. Cabling and Rewiring

- **Supply and Installation of Molex Cat6 Network Points:**
 - One dedicated Molex Cat6 network point must be installed in **each student room**, ensuring high-speed, shielded, and interference-resistant connectivity to support the new APs.
- **Installation of Cable Routes:**
 - Construct and install compliant and aesthetically appropriate cable routes, including trunking, conduits, wire mesh cable trays, and surface-mount enclosures to accommodate both horizontal and vertical cable runs throughout the residence.
 - The installation must ensure structural integrity, ease of future maintenance, and minimal visual disruption.
 - Cable routing must extend through shared spaces, risers, ceiling voids, and service ducts, with proper fastening and separation between power and data lines where necessary.
 - And service provides must follow below colour codes.
 - Network point - Gray
 - Fly leads - Gray
 - Patch leads - Green
- **Patch Panels and Brush Panels:**
 - Supply and install high-quality **Molex Cat6 patch panels** along with **brush panels** for proper cable management and organization in network cabinets. Label all ports clearly and provide a port-to-room mapping chart.
- **Fibre Installation:**
 - Extend fibre connectivity as required to aggregation points or communication rooms within Imbewu. Existing splice trays, midcouplers, and fibre leads may be reused where appropriate, but new pigtails must be included and installed.
 - Ensure proper termination, splicing, and labelling.
- **Drilling and Wall Penetration:**
 - Perform precision drilling of 25mm holes for cable routing between rooms, corridors, and network closets, with minimal disruption to the building structure and student living areas.

- **AP Mounting and Hardware Installation:**
 - Mount all in-room and corridor APs securely using brackets and ceiling kits as applicable.
 - Ensure correct height, angle, and clearance as per manufacturer guidelines for optimal RF propagation.
- **Testing and Certification:**
 - Conduct UTP and Fibre link testing post-installation using industry-standard tools. Submit complete test result reports for every installed network point and fibre segment as part of the project handover documentation.
- **Health and Safety Compliance:**
 - Implement and maintain all required **health and safety protocols** throughout the installation, including dust control, noise management, and safe access in high-traffic or occupied areas.
- **Consumables and Logistics:**
 - Include all consumables required for a clean and reliable installation (e.g., cable ties, glands, saddles, plugs, sealant), as well as logistics planning for material handling, onsite storage, and waste removal.

4.2.4. Network Switch Installation

- Supply and install **network switches** to power the newly deployed APs.
- Ensure all switches provide sufficient **power budget, port density, and uplink capacity** to support high-throughput wireless access.
- Label and document all switch ports and patch panel assignments.

4.2.5. Construction and Physical Installation

- Carry out **minor construction works**, such as wall drilling, bracket mounting, trunking, and in-room AP housing installations.
- Ensure all physical works are completed to high safety and aesthetic standards and that no disruption occurs to occupied rooms without coordination.

4.2.6. System Configuration and Commissioning

- Configure all APs and switches based on UJ's network standards, including **SSID, VLAN segmentation, WPA3 security, and Active Directory integration**.
- Perform system commissioning and testing to validate **coverage, signal strength, speed, roaming, and device concurrency**.

4.2.7. Professional Services

- Provide qualified engineers and technicians to deliver **survey, installation, configuration, and documentation services**.
- Assign a dedicated project manager to oversee planning, execution, and stakeholder engagement.
- Submit detailed **as-built documentation**, including floor plans with AP positions, cabling routes, and configuration logs.

4.2.8. Ongoing Technical Support

- Provide **post-installation support** (minimum 3 months) for troubleshooting and performance tuning.
- Offer **optional ongoing SLA-based technical support** for long-term maintenance and remote monitoring.
- Ensure all APs and switches are covered under **manufacturer warranty**, including firmware updates and security patches.

4.2.9. Outdoor Area Coverage

- Extend Wi-Fi coverage to designated outdoor communal areas immediately surrounding the residence.
- Install outdoor-rated APs with weatherproof casings and proper mounting infrastructure.
- To improve coverage, reach and eliminate dead zones caused by side-mounted building installations, the project will include the installation of two (2) dedicated mounting poles within key outdoor zones. Existing APs currently mounted on building walls must be relocated to these poles and centrally positioned to provide balanced, 360-degree coverage in open areas such as courtyards or seating zones.
- Ensure that all outdoor APs are seamlessly integrated into the broader residence Wi-Fi environment with stable roaming handoff from indoor APs and uninterrupted user experience.
- Outdoor installations must follow UJ's security, aesthetic, and civil engineering guidelines, including secure cabling routes, grounding, and unobtrusive visual placement.

4.2.10. AP's Physical Security

- All APs must be secured using cost-effective, lockable mounting brackets or enclosures designed to prevent unauthorized removal or tampering.
- Brackets and enclosures must not interfere with the AP's performance (e.g., signal dispersion, heat dissipation), and must be compatible with the make/model of the APs supplied.
- UJ would like pricing for enclosures to secure the WIFI access points within the rooms.
- This can be priced separately and is UJ's discretion whether it will be included as part of the order.
- The provider should propose a cost-effective security solution that balances physical protection with aesthetic and functional integrity.
- Make sure enclosures protect the AP against water and dust damage.
- Rugged polycarbonate housing protects router/modem/access point from theft or tampering.
- Transparent to wireless signals, ensuring an optimum Wi-Fi signal in all directions.
- Comes fully assembled and ready for wall- or ceiling-mounting using included hardware.

4.3. Existing Issue and Considerations:

The Soweto Imbewu Student Residence presents several environmental, structural, and technical challenges that must be factored into the Wi-Fi enhancement solution. The service provider is expected to conduct a detailed site assessment and propose tailored recommendations and mitigations based on the following existing issues and mandatory installation considerations.

4.3.1. Existing Issues

The current environment poses a range of challenges that directly affect Wi-Fi performance and installation efficiency:

- **Aging Access Points (APs):**
Existing APs in some areas are outdated and no longer meet modern performance or coverage standards. These may be candidates for decommissioning, replacement, or relocation to low-demand zones (e.g., kitchens, lounges).
- **Thick Double Walls and Concrete Structures:**
Student rooms are separated by dense, double-layer concrete walls that significantly degrade wireless signals, especially when APs are placed outside the rooms.
- **Insulated and Fully Shut Doors:**
Sealed doors with no airflow or material permeability further hinder signal penetration, necessitating in-room AP deployments for optimal coverage.
- **Rodent Activity (Rat Issues):**
There have been recurring incidents of rats damaging network cabling, which has led to service disruptions. Suppliers are required to recommend rodent-proof cable sheathing or containment solutions as part of the implementation plan.

4.3.2. Key Considerations during Installation

To ensure a high-quality, durable, and safe installation, the following considerations must be strictly followed:

- **Reuse of Existing Infrastructure:**
Where feasible, utilize existing outdoor mounting points (originally used for surveillance cameras) for Wi-Fi APs to reduce cost and civil work overhead.
- **Efficient AP Placement Strategy:**
Develop an AP layout that ensures maximum signal coverage and minimal interference, with thoughtful AP and switch placement that avoids conflict with existing signage or electrical fixtures.
- **Minimal Invasive Work with High Aesthetic Finish:**
Cable routing and drilling must be planned to minimize visible disruptions. All visible cabling should be enclosed neatly, and surface-mounted where necessary using clean, professionally finished cable routes.
- **Wall Scanning and Utility Detection:**
Prior to any wall penetration or drilling, the supplier must use industrial-grade scanners to detect existing electrical conduits and water pipes. This is mandatory to avoid accidental damage, ensure safety compliance, and eliminate costly rework.
- **Optimal Cabinet and Core Equipment Location:**
Determine suitable and secure locations for network cabinets and core switches that allow for efficient cabling, maintenance access, and minimal environmental interference.
- **Avoiding Signal Interference in Kitchen/Common Areas:**
APs currently placed in areas with microwave ovens or other high-interference appliances must be relocated, and such interference zones should be avoided when designing new placements.
- **Wi-Fi Heatmap Survey :**

The service provider is required to conduct a comprehensive Wi-Fi heatmap survey of the Imbewu Student Residence to assess current signal strengths, identify blind spots, and understand environmental interference. Based on the findings, the provider must design an optimized AP layout that ensures complete, high-quality coverage. Final AP placement must also consider any physical or structural obstacles discovered during the onsite survey to guarantee consistent and reliable wireless performance.

5. BUILDING & FLOOR PLAN

The **Soweto Imbewu Student Residence** consists of multiple interconnected **blocks** or **buildings**, each varying in height and room configuration. As part of this project, the service provider must understand the layout to ensure optimal wireless design and implementation.

- Each block comprises **multiple floor levels**, typically ranging from **ground floor up to additional residential floors**, depending on the specific building design.
- Each floor consists of a combination of **single rooms** (one student per room), single rooms paraplegic , **double rooms** (two students sharing a room) and a double rooms paraplegic.
- The distribution of single and double rooms may vary by floor and block, and this must be carefully factored into the AP placement and cabling plans to ensure coverage density matches occupancy patterns.

The service provider is expected to review these floor plans carefully, verify them during site surveys, and incorporate them into the final AP layout, cable routing, and infrastructure planning for the project.

5.1. Building Details:

	SINGLE ROOMS	DOUBLE ROOMS	SINGLE ROOMS-PARAPLEGIC	DOUBLE ROOMS-PARAPLEGIC
BLOCK A				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK B				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK C				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		

BLOCK D				
LEVEL 0	1	3		2
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK E				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK F				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK G				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK H				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK J				
LEVEL 0	0	10		
LEVEL 1	0	10		
LEVEL 2	0	10		
BLOCK K				
LEVEL 0	1	7		
LEVEL 1	1	7		
LEVEL 2	1	7		
BLOCK L				
LEVEL 0		4	1	1
LEVEL 1	1	7		

LEVEL 2	1	7		
SUB TOTAL	29	233	1	3
TOTAL	265			
CAPACITY	502			

5.2. Floor Plan

To assist in planning and design activities, detailed floor plans of all blocks and floors within Imbewu Residence will be made available to the appointed service provider.

Assessment Considerations

Each site must be evaluated for:

- Physical construction attributes (e.g., wall thickness, building materials, AP mounting feasibility).
- Usage patterns and peak hour loads.
- Interference sources and RF propagation limitations.
- Wired and wireless device inventory and capacity readiness.

The goal is to ensure that all identified sites regardless of function or location are assessed for coverage adequacy, performance consistency, security integrity, and alignment with multigigabit infrastructure requirements.

6. BOQ Network Equipment – Pricing must be based on R20.50 to 1 Euro for evaluation purposes

6.1. Wireless Access Points

No.	Part Number	Model	Description	Qty	Price per Unit	Total
Wireless Equipment						
1	Wireless Access Points					
	AirEngine 5773-23W_AP					
1.1	WLAN AP Hardware					
	50087921	AirEngine5773-23W	AirEngine5773-23W (11be indoor, 2+2 dual bands, smart antenna, USB)	280		
1.2	License					
	88038XDH	N1-11beAP-A-Lic	N1-Cloud Campus, Advanced, 11be AP, Per Device	280		

	88063NWP	N1-11beAP-A-SnS1Y	N1-Cloud Campus, Advanced, 11be AP, SnS, Per Device, 1 Year (Annual fee validity period: 1 year from " PO signed plus 90 days ")	280		
1.3	Technical Support Service					
	88134UGJ-61J	50087921_88134UGJ-61J_12	AirEngine5773-23W (11be indoor, 2+2 dual bands, smart antenna, USB) _Co-Care Basic AirEngine5773_12Month(s)	280		
		Sub Total				R0.00
		VAT				R0.00
		Total				R0.00

6.2. Core Switch Equipment

Part Number	Model	Description	Qty	Price per Unit	Total
Core Switch Equipment					
S6730-H-V2 24 Port Series Core switch					
		S6730-H24X6C-V2 (24 x 10 GE SFP+, 6 x 40/100 GE QSFP28, without power module)	1		
License					
		S67XX-H Series Basic SW, Per Device	1		
		S67XX-H Series Basic SW, SnS, Per Device (Annual fee validity period: 1 year from " 90 days after PO signed ")	1		
		S6730-H24X6C-V2 (24 x 10 GE SFP+, 6 x 40/100 GE QSFP28, without power module) _Co-Care Premier S5731-S48P4X_12Month(s)	1		
Power					
PAC600S12-CB		600W AC&240V DC Power Module	2		
S5731 S Series Access Switches					
02353AJH	S5731-S48P4X	S5731-S48P4X (48*10/100/1000BASE-T ports, 4*10GE SFP+ ports, PoE+, without power module)	12		
License 48 Port					

		S57XX-S Series Basic SW, Per Device	12		
		S57XX-S Series Basic SW, SnS, Per Device (Annual fee validity period: 1 year from " 90 days after PO signed ")	12		
		S5731-S48P4X (48*10/100/1000BASE-T ports,4*10GE SFP+ ports,PoE+,without power module) _Co-Care Premier S5731- S48P4X_12Month(s)	12		
Power					
PAC1000S56-CB		1000W AC&240V DC Power Module	24		
		Sub Total			R0.00
		VAT			R0.00
		Total			R0.00

6.3. Cable & Wiring:

NO.	ITEM	QTY.	UOM	PRICE	AMOUNT
1	1. Molex Cat6 Network Points x 262			Sub Total:	
1.01	CDM6: Cable MOLEX Category 6 4 Pair Solid UTP Grey (A- ME10-C00100)	20,000.00	M		
1.02	LMC60.5: Lead MOLEX Category 6 0.5m Grey (A-ME10- C00250)	262.00	EA		
1.03	LMC602GN: Lead MOLEX Category 6 0.2m Green	262.00	EA		
1.04	OE25/01: Wall Box Extension 4x4 (100mm x 100mm) & Cover	262.00	EA		
1.05	OM35: Outlet Surface Mount MOLEX Synergy 1 Port Category 6 (A-ME10-C02800)	262.00	EA		
1.06	LAB01: Install Cost - Rate / Hour per Team (Normal)	262.00	HOUR		
2	2. Molex Cat6 Patch Panel & Brush Panel			Sub Total:	
2.01	EC-PP1UBMB: Brush Panel 1U Black	12.00	EA		
2.02	PPM06: Patch Panel MOLEX Category 6 24 Port Datagate	12.00	EA		
3	3. Fibre Installation			Sub Total:	
3.01	CFHDD008M: Fibre 008 Core Multimode	360.00	M		
3.02	LFTLC01: Lead Pigtail LC 001m Multimode	48.00	EA		
3.03	SA-MEGALSPSP: Splice Protector Clear LIGHTSPEED 3.0mm x 60mm	48.00	EA		
3.04	LAB01: Install Cost - Rate / Hour per Team	18.00	HOUR		

	(Normal)				
3.05	FS01: Fusion Splicing per splice (Single / Multi Mode)	48.00	EA		
4	4. Cable Routes			Sub Total:	
4.01	CGA25: Adaptor & Lock Nut 25mm BOSAL Galvinised	262.00	EA		
4.02	CGB25: Slow Bend 25mm BOSAL Galvinised	262.00	EA		
4.03	CGL25: Conduit Length 4.0m x 25mm BOSAL Galvinised	262.00	EA		
4.04	CGSS25: Strap Saddles 25mm BOSAL Galvinised	786.00	EA		
4.05	CT062: Cable Tray Wire Mesh 050mm Straight x 3.0m GS50	310.00	EA		
4.06	CT117: Wire Mesh Splice Clamp Set	930.00	EA		
4.07	CT248: M08 Threaded Rod	124.00	EA		
4.08	I0000601: CBT P2000 1.6mm channel 5m PG	12.00	EA		
4.09	SUNDRIES-FMA830: Anchor Drop In 08mm x 30mm use With 8mm Rod	930.00	EA		
4.10	SUNDRIES-FMHN08: Hex Nut 08mm	930.00	EA		
4.11	LAB01: Install Cost - Rate / Hour per Team (Normal)	220.00	HOUR		
5	5. Drilling of 25mm Holes			Sub Total:	
5.01	SUNDRIES-DBM25570S: Drill Bit Masonry 25mm x 570mm SDS	2.00	EA		
5.02	JOB-MISC: Drill 25mm Holes into rooms	306.00	EA		
6	6. Mounting of APs			Sub Total:	
6.01	LAB01: Install Cost - Rate / Hour per Team (Normal)	131.00	HOUR		
7	7. Health and Safety			Sub Total:	
7.01	JOB-MISC: Health and Safety Requirements	1.00	EA		
8	8. Consumables			Sub Total:	
8.01	JOB-CONS: JOB - Consumables	1.00	EA		
9	Logistics			Sub Total:	
9.01	KM: Travelling Per Kilometre				
				Total	R0.00
				VAT	R0.00
				Total	R0.00

6.4. Access Point Enclosure:

No.	Part Number	Model	Description	Qty	Price per Unit	Total
Security Equipment						
1	Access Points Enclosure					
		Security Enclosure		280		
		Sub Total				R0.00
		VAT				R0.00
		Total				R0.00

7. DELIVERABLES

The appointed service provider will be expected to deliver the following items and services as part of the successful execution of the Wi-Fi improvement project at Imbewu Student Residence.

7.1. Documentation & Design:

- Finalized AP layout and placement plan (including zig-zag pattern and inter-floor/inter-building interference considerations).
- Updated cabling and switch topology plan.
- Detailed Bill of Quantities (BoQ) covering all equipment, materials, and installation costs.
- Floor-by-floor deployment plan referencing single and double room allocations.
- Wall-scanning verification report (identifying electrical/water lines prior to drilling).
- Heatmap analysis validation (based on the UJ-provided survey) and blind spot remediation plan.

7.2. Installation & Infrastructure:

- Supply and installation of new in-room Access Points (one per room).
- Repositioning and reuse of existing corridor APs (where feasible).
- Mounting of APs on secure anti-theft brackets/enclosures (indoor and outdoor).
- Installation of outdoor-rated APs, including two pole-mounted APs in designated communal areas.
- Supply and installation of network switches.
- Construction and installation of cable routes (trunking, wire mesh, conduits, etc.)
- Drilling, routing, and cabling with proper finishing and minimal disruption.
- Fibre installation and reuse of existing midcouplers/splice trays where applicable.

7.3. Testing & Commissioning

- UTP and Fibre test results (certification report for all links).
- Final RF tuning and AP calibration report.



- Confirmation of successful roaming handoff and throughput benchmarks.
- Signal validation testing for both indoor and outdoor coverage areas.

7.4. Safety & Compliance

- Health and safety compliance documentation.
- Equipment mounting and routing that avoids disruption to signage, infrastructure, or living spaces.
- Rat-proofing and cable protection recommendations implemented where necessary.

7.5. Support & Training

- Configuration of APs and switches according to UJ's standard VLAN and security architecture.
- Knowledge transfer and operational handover session with UJ's internal IT team.
- Warranty documentation for all hardware installed.

7.6. Project Reports

The service provider must submit the following reports upon completion of the project, as part of the formal handover package:

7.6.1. Wireless Deployment & Coverage Report

- Final AP placement summary, including room-level deployment details and mounting types.
- Updated heatmaps (pre- and post-installation comparison) for each floor and outdoor zone.
- Signal strength (RSSI), Signal-to-Noise Ratio (SNR), and channel utilization report.
- Identification and resolution log for previously existing blind spots.
- Ekahau tools must be used for generating professional Wi-Fi assessment reports, including heatmaps, signal analysis, and optimization insights.
- And successful service providers will be given a UJ Report format and their report must align to UJ Standard Report Format.

7.6.2. Cabling and Infrastructure Report

- Detailed as-built cable routing diagrams.
- Quantity and type of CAT6 and fibre links installed.
- Wall-scanning confirmation records showing verification of water/electricity lines.
- Cable management layout, including trunking/wire mesh, access points, and switch cabinets.

7.6.3. Installation Compliance & Safety Report

- Health and safety compliance checklist.
- Photo documentation of mounted APs, switch cabinets, pole installations, and cabling.
- Summary of anti-theft measures implemented for AP security.

7.6.4. Test and Certification Report

- UTP and Fibre certification test results.
- Performance benchmarks including throughput, latency, roaming behaviour, and outdoor coverage validation.
- Post-installation RF tuning report with calibration notes.

7.6.5. Configuration and Network Design Report

- VLAN, SSID, and switch port configuration summary.
- Access Point firmware versions and wireless controller integration notes (if applicable).
- IP addressing scheme and logical topology overview.

7.6.6. Issue Log and Remediation Tracker

- Log of any installation challenges encountered (e.g., inaccessible areas, signal overlap).
- Actions taken to resolve issues, including AP relocations or layout adjustments.

7.6.7. Handover & Support Documentation

- Complete project handover document with contacts, roles, and escalation paths.
- Warranty certificates for all hardware installed.
- Optional: SLA/maintenance support proposal with coverage details and response times.

8. PROJECT PLAN AND TIMELINE REQUIREMENTS

The service provider is expected to submit a detailed **project plan** outlining the phases, activities, and estimated timeframes required to complete the Wi-Fi enhancement at Imbewu Student Residence.

The plan must include the following:

- **Project Phases**
- **Delivery Schedule**
- **Resource Allocation**
- **Timeline and Milestones**
- **Risk Mitigation**

And the duration of the project is expected to be completed within 4 months from the day of project commencement.

9. MANDATORY CHECKLIST REQUIREMENT:

Requirement	Provided Yes/No	Comments
Huawei certified partner – Valid Proof to be provided (Mandatory Requirement)	Provided Yes/No :	
Molex certified installer – valid proof provided. (Mandatory Requirement)	Provided Yes/No :	
Fibre cable installer – valid proof provided (Mandatory Requirement)	Provided Yes/No :	
Company to produce profile of team qualifications relating to the installation and support of Huawei Equipment (Mandatory Requirement)	Yes/No :	
Supply of Huawei network equipment including Wi-Fi Access Points – Delivery period to be indicated	Delivery Period :	
3 Cable Technician molex certificates	Yes/No :	
2 Cable Technician fibre certificates	Yes/No :	
References with contact details 3 x Huawei hardware references 3 x Cabling references	Yes/No :	
Project methodology with project plan	Yes/No :	
Current UJ workload	Yes/No:	

10. Technical Adjudication.

This Tender will be evaluated in three stages:

- **Stage 1** – Tender Compliance
- **Stage 2** – Technical\Functionality
- **Stage 3** - Financial and B-BBEE

10.1. Stage 1 Compliance Evaluation

10.1.1. Done by tender office if submission meets tender compliance.

10.2. Stage 2 Technical\Functionality Evaluation Criteria

Requirements – Network hardware:	
4 or 5 Star Huawei Partners	Service provider to produce the certification level from partner. Failure to provide valid Huawei Certificate will lead to disqualification.
Resources	Service provider to produce engineer certifications for Routing & Switching as well as WLAN. These must be based on minimums as indicated in section 3.1.2. Certificates must be valid. The engineers indicated in the submission must be the people available and will be assigned to the Project.
Delivery Dates	Delivery dates to be indicated
Co-Care to be included and priced	Co-Care must be able to be transferred to the existing UJ network management provider after successful implementation. Co-Care start dates must be arranged with UJ before orders are placed with the vendor or distributor.
Project Methodology	The service provider to include project methodology to be used for installation with high level project plan including network hardware installation as well as cabling installation.
References	Service provider to submit minimum 3 references with contact names and numbers pertaining to Huawei network hardware and 3 references for cabling. References can be in the form of letters from clients or on service provider letterheads referencing the type of work undertaken for a client.
Installation	Normal office hours and after hours to be accommodated for the installation
Requirements - Cabling	
Molex Certificate certifying installation of site to be produced on completion - For data point installation-Strict requirement to process payment.	

Service provider to produce valid Molex cable installer Certificate.
Service provider to produce valid Molex technicians certificates.
Molex Copper Cable test results to be provided after installation.
Patching to switches must be done.
Mounting of wifi access points.
Patching of data points including wifi access points.
Full installation of all components specified.
Site inspection to be done before materials are ordered.
Labelling of all data points.
Labelling of fibre cables and splice trays.
Fiber Cables Test Results to be provided after installation (OTDR).
Document or as built diagram indicating data point numbers and position to be produced.
Full Project Management to be done.
Earthing of all Cabinets.
Fire proof sealant to be included for re-sealing of holes
Core Drills to be included. When awarded the service provider can allocate how many will be needed. Drilling of 25 mm holes for the piping within the rooms to also be accommodated for as part of the pricing.

Points Table:

Requirement	Maximum points attainable
1. Meet specifications and requirements <ul style="list-style-type: none"> Supply of Huawei network equipment including Wi-Fi Access Points – Delivery period to be indicated - 5 points Supply of Huawei SFP and CISCO transceivers. Delivery period to be indicated - 5 points Co-Care Premier is required 24x7x4H. To transfer co-care to an existing provider. Co-Care included in submission - 5 points Installation indicated - 10 points Items in BOQ priced - 20 points 	45
2. References – minimum 6 contactable references <p>3 x HUAWEI network hardware references = 15 points</p> <p>3 x cabling references = 15 points</p>	30

3. Project methodology for cabling and network equipment 5 points for methodology indicated 5 points for cabling project plan 5 points network hardware project plan	15
4. Current Workload ie: if no project currently undertaken within UJ the service provider will attain 10 points. 0 project = 10 points 1 project = minus 2 points 2 projects = minus 4 points 3 projects= minus 6 points 4 projects = minus 8 5 and above = minus 10	10
Total Points obtainable	100

10.2.1. Compulsory: (Disqualification Criteria)

- Huawei certified partner – Proof to be provided
- Molex Certified Installer - Proof to be provided
- Fibre Installer - Proof to be provided

Failure to provide all minimum valid Certificates will lead to disqualification.
Should a tenderer provide invalid, expired or no proof of the required certifications, they will not be evaluated further.

10.3. Stage 3 - Financial and B-BBEE

- Price (80 points)
- BBBEE (20 points)

11. Pricing Table

No	Item Name	Description	Price
1	All Equipment Cost	Cost of all equipment's involved including APs, Switches, Cable & Wires, Poles, license cost etc.	
2	Installation & Configuration Cost	Price of entire project installation and configuration cost including the labor and logistics cost.	
3	Reports Delivery & Sign off	Final Project deliverable with all reports.	
4	Other Costs if any and specify	Any other costs	
		Sub Total	
		VAT	
		Total	

