

SANBI

Biodiversity for Life



South African National Biodiversity Institute

TERMS of REFERENCE

FOR

**THE APPOINTMENT OF A SERVICE PROVIDER FOR THE INSTALLATION
AND UPGRADE OF NETWORKING INFRASTRUCTURE AT THE HAROLD
PORTER NATIONAL BOTANICAL GARDEN (BETTY'S BAY) AND THE
KAROO DESERT NATIONAL BOTANICAL GARDEN (WORCESTER) OF THE
SOUTH AFRICAN NATIONAL BIODIVERSITY INSTITUTE**

**The South African National Biodiversity Institute (SANBI)
Private Bag X101
Silverton
Gauteng
0184**

Tender No: IT364/2020

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1. Introduction and Background

The South African National Biodiversity Institute (SANBI) is a public entity which is mandated by the National Environmental Management: Biodiversity Act (NEMBA), Act No. 10 of 2004. SANBI's mission is to champion the exploration, conservation, sustainable use, appreciation and enjoyment of South Africa's exceptionally rich biodiversity for all people. The Institute provides biodiversity knowledge and information through research and communication and gives biodiversity planning and policy advice and pilots best practice biodiversity management models in partnership with a wide range of stakeholders. In addition, it manages botanical and zoological gardens.

2. Invitation to Tender

The purpose of this Terms of Reference (ToR) is to provide prospective Service Providers with adequate information to enable them to submit a proposal to supply, install and configure structured cabling infrastructure; Local Area Network (LAN) and fibre at the Harold Porter National Botanical Garden in Betty's Bay and Karoo Desert National Botanical Garden in Worcester. The installation must meet the requirements for a modern and functional system that will cater for existing capacity and allow for anticipated future growth.

Responses can be dropped off in the Tender Box located in the Biodiversity Building at the Pretoria National Botanical Garden, 2 Cussonia Avenue, Brummeria, Pretoria, Gauteng during office hours or on before the closing date 13 March 2020 during normal office hours: 08:00–16:00 (See street address under section on submission of tenders).

3. Compulsory Briefing Sessions and Site Inspections

The sessions will be held at:

The Karoo Desert National Botanical Garden in Worcester on:

Date: 2 March 2020 at 13:00

Venue: Boardroom, Roux Road, Panorama (Off National Road), Worcester

The Harold Porter National Botanical Garden in Betty's Bay on:

Date: 3 March 2020 at 13:00

Venue: Nivenia Hall, Cnr Clarence Drive and Broadwith Road, Betty's Bay

Failure to attend the Compulsory Briefing Sessions and Site Inspections will disqualify a potential bidder's proposal.

4. Scope of Work

SANBI requires a suitable network solution that makes provision for current data communication services and applications whilst taking into consideration proposed future technologies i.e. IP telephony and Video Conferencing solution as well as security and access control services. The ideal Service Provider will be required to have an in depth understanding of networking and IP telephony, unified collaboration components and related dependencies to support the goals and objectives of ICT within SANBI.

Service Providers will be required to replace and upgrade the Local Area Network (LAN) Infrastructure at the buildings including all access points for security systems, ticket offices, boom gates, workshops and restaurants located at both gardens. Any redundant or unused/legacy network equipment must be removed.

Potential Service Providers will be required to undertake site visits to verify site details and requirements to ensure a comprehensive and accurate response (See site inspection dates in point 3).

The successful Service Provider, will be required to facilitate and manage the activities of planning and installing the proposed networking components in accordance with the Institute's processes and policies. The networking solution needs to conform to the ISO11801 structured cabling standard.

4.1 Details of hardware and services to be supplied:

- The supply, installation and commissioning of cabling hardware and switches with regards to core and distribution switches
- The supply installation and commission of wall mounted cabinets to allow sufficient future capacity and accessibility
- The supply and installation of a fibre optic backbone cabling from a central location to the various buildings within the Local Area Network (LAN)
- The termination of such fibre optic cabling will consist of fusion splicing onto dedicated fibre patch panels
- The supply and installation of Cat 6 horizontal cabling within the various office sites
- The replacement of Cat 4 and Cat 5 copper cabling where required
- The termination to dedicated Cat 6 patch panels
- The supply and provision of a wireless network coverage for certain areas
- The provision of a test result for each copper cable and each fibre optic core
- The supply of fibre optic and copper patching and fly leads
- Cable looping and fastening as required
- Testing, labelling and commission of all services installed
- Trenching and additional civil work where required

4.2 Cabling equipment and installation specification

The cabling system extends from and includes all cabling and equipment from the communication outlet to the patch panel or switch port in the data room, wiring closet or patch room as may be applicable.

4.2.1 Fibre optic backbone cabling

- Install single and multi-mode 8-core fibre optic cables
- All fibre cabling will terminate onto a 24/48 port LC 1U fibre patch panel by means of fusion splicing
- All fibre optic cables will be clearly labelled, and display the relevant fibre warning tags
- The backbone fibre cables will connect to the relevant core and distribution switches via GBIC transceivers
- The cable jackets are to be legibly marked and specification sheets provided for all cables

4.2.2 Fibre optic cable termination

- The termination of the fibre optic cabling includes all fibre terminations, splicing and commissioning within an enclosed data cabinet, wiring closet or junction box
- The terminal ends of all fibre cores will be field connectorised

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- The termination of the fibre optic cabling ends shall be agreed upon and will be direct connector terminations or pigtails fusion spliced to the fibre cores. Fusion splice loss not to exceed 0.03 Db
 - The termination of the fibre optic cabling, shall either be made in rack mountable fibre patch panels, or external junction boxes, complete with fibre organizers or splice cassettes.

4.2.3 Fibre optic cable testing

The fibre optic cabling infrastructure will be comprehensively tested and certified with the following requirements:

- Test all cabling using an Optical Time Domain Reflectometer (OTDR) from both ends
- Cable losses and back reflectance are to comply with the standards
- Test all fibre cores and save the test results for record purposes

4.2.4 Horizontal copper cabling

- All installed cabling shall comprise of Category Six (Cat 6) unshielded twisted pair copper cable
- Cabling between data/patch room, cabinets or communication outlet points shall be made as individual home runs. No intermediate punch down blocks or connections shall be utilised
- The factory cable twist shall be maintained throughout the runs
- The maximum run length shall not exceed 100 m
- Cables installed on cable trays shall be neatly laid side by side to the full width of the tray layered
- Cable penetrations of the fire barriers shall be packed with fire blocking material in accordance with local fire regulations
- All cables to be neatly dressed and physically secure to prevent dislocation or damage
- No cables shall be secured to any gas, plumbing, steam or service pipes
- Cables shall not be secured to any utility structure in any fashion that may affect access to or operation of those facilities
- The minimum Cat 6 cable bend where possible is 25 mm. No 90-degree bends are permitted. No cables shall be pinched or kinked by over-tightened cable ties or any other securing strap
- The cable tension specified by the cable manufacturer shall not be exceeded
- Cable jackets are to be legibly marked and specification sheets for all cable to be provided

4.3 Copper cabling termination

- The cabling shall be terminated onto copper patch panels on one side and to flush or surface mounted communications outlets on the other side using 8 pin modular RJ-45 jacks with screen connectors
- All RJ45 data connectors shall be CAT 6 compliant
- For all installations the default installed insert for CAT 6 shall be T568A wiring with an option to accommodate T568B
- Connectors shall have the durability rating of 750 mating cycles as minimum
- There shall never be more than 13 mm of untwisted, unsheathed CAT 6 cable at either the patch panel or communication outlet location

4.3.1 Patch panel termination

- For all installations, unless otherwise specified, the default installed insert for Cat 6 shall be T568A wiring with the option to accommodate T568B
- Cables to be terminated into 1U (Height) size, 24 port Cat 6 compliant patch panels

4.4 Communications outlet

- Each cable shall be terminated at the user or network device location on the specified communications outlet
- Outlets should be both flush with surface mount outlets and shall be Cat 6 component compliant
- Outlets shall not be mounted to any temporary, movable or removable surface, door or access outlets

4.5 Copper cable testing

- All horizontal cabling is to be tested for full compliance with Cat 6 regardless of intended use
- All cabling systems (cables and jacks) installed must at a minimum be capable of supporting 10baseT, 100baseT and 1000baseT
- All cable pairs shall meet or exceed the specified cable specification and any cable not meeting or exceeding these will be inspected for anomalies and re-terminated or replaced where necessary to ensure compliance
- All cables shall be line mapped to verify pin to pin continuity, lack of short and polarity reversals
- All cables shall be tested with a relevant DTX cable analyzer and the test results saved for documentation and record purposes

4.6 Cable labelling

The cabling infrastructure shall be comprehensively labeled with the following requirements:

- All cables shall be labelled with machine printed labels
- The method of identification shall be determined and agreed upon
- Copper cable labels shall be under clear (transparent) heat shrink and attached between cable on both ends
- Communication outlet labelling shall be agreed upon and coincide with the appropriate patch panel label
- Fibre optic warning tags shall be displayed at various intervals

4.6.1 Cable warranty

- The cabling provided must have a 15-year warranty
- Cable test results must be provided after installation

4.7 Switching hardware

- Switching hardware must include both core and distribution switches where required
- Switch ports capable of 1000 mbps speeds
- Where applicable, each switch will have two (2) or more SFP uplink ports capable of 1 Gb copper or fiber uplink speeds
- All switches must support Power over Ethernet (PoE) to the end-user devices

5. Documents Required

5.1 Mandatory Requirements/Documents

Tenders must include the following documentation (**Failure to submit the required documentation WILL lead to disqualification**):

- Duly completed and signed **SBD forms**
- Compulsory briefing sessions certificates of attendance
- A copy of the Company Central Supplier Database (CSD) registration report
- A valid OEM Certification of the proposed technologies
- Current and valid Cabling Installation Certificate
- **Fee/cost structure to be submitted with the “ORIGINAL” tender document only (See section 14)**
- A valid copy of the **Unemployment Insurance Fund (UIF)** letter of compliance issued by the Department of Labour
- A certified copy of Liability Insurance Cover for the company and the total cover available per claim to the value of R1 million
- Letter of Good Standing from the office of the **Compensation Commissioner** as required by the Compensation for Occupational Injuries and Diseases Act (COIDA). The letter should be issued by the Department of Labour
- A copy of the latest Audited Financial Statements
- Completed Local Content Declaration SBD 6.2 and Annex B, C, D & E
NOTE: certain items listed in this tender include local content. The Declaration Certificate for Local Content SBD 6.2 together with the Annexure C (Local content Declaration: Summary Schedule) must be completed, duly signed and submitted by the bidder at the closing date and time of the bid (Refer to section 7 Local Content Requirements).
- Pre-qualification criteria for preferential procurement: Section 4(1) (a) A tenderer having a stipulated minimum Broad-based Black Economic Empowerment (B-BBEE) Status Level contributor, level 2. A valid original or certified copy of a B-BBEE Status Level Certificate or sworn affidavit must be submitted.

5.2 Additional Documents

Each tender response should also include the following, although failure to submit these documents will not result in disqualification. However, the information contained in them is required for evaluation purposes.

- At least three (3) client reference letters for references sites where such a solution has been implemented successfully.
- An overview of how the tender response will address current and future requirements.
- A schedule of activities with the expected duration of the project and an indication of where activities may result in potential service interruption
- Plans indicating how the upgraded, new and replaced networking components will be functionally tested to the ISO 11801 standard.

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- Recommendations or considerations with the response that could enhance the ICT services.
 - Summary of how the Service Provider envisages implementing the networking solution and how the Service Provider intends to mitigate service impact on daily operations.
 - Schematics or diagrams to illustrate tender response.
 - The tender document must indicate costs for each garden, whilst providing an overall cost for the project. Financial or pricing details should only be included in the pack marked "ORIGINAL". Financial information included in the documents in the pack marked "COPY" will lead to your bid being disqualified (See Annexure C, D and E).

The prospective Service Provider must take into consideration the remediation of any legacy networking components and devices in their tender response.

All documents must be neatly bound, clearly labelled and include a Table of Contents.

6. Local content requirements

This bid contains local content. Only locally produced or locally manufactured steel products, cables and plastic pipes with a minimum threshold for local production and content will be considered. The Local Content threshold of 100% (One hundred percent) for steel products, 100% (One hundred percent) for plastic pipes, and 90% (Ninety percent) for cables will be required for items specified on SBD 6.2. The Declaration Certificate for local content SBD 6.2 together with all Local Content Annex Declaration must be completed, duly signed and submitted by the bidder at the closing date and time of the bid.

Bidders must submit a certificate from a registered auditor confirming that the local content declaration templates have been audited and certified as correct (Local content Annex B is attached).

Only the South African Bureau of Standards (SABS) approved technical specification number 1286:2011 must be used for local content.

The Local Content (LC) expressed as a percentage of the bid price must be calculated in accordance with the following formula which must be disclosed in the bid documentation:

$$LC = (1 - x/y) * 100$$

Where

x is the imported content in Rand

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

in case of projects x and y value of steel products, cables, plastic pipes and components in the project.

The exchange rate to be used for the calculation of local production and content must be the exchange rate published by the South African Reserve Bank at 12:00 on the date of the advertisement of this bid.

SABS approved technical specification number SATS 1286:2011 and guidance on the Local Content calculation and together with the Local Content Declaration (Annex C), (LOCAL CONTENT DECLARATION (ANNEX C), (IMPORTED CONTENT DECLARATION (ANNEX D), and LOCAL CONTENT DECLARATION (ANNEX E).

Supporting Schedule for ANNEX C are attached and are also accessible to all potential bidders on the DTI's official website: [http://www.thedti.gov.za/industrial development/ip.jsp](http://www.thedti.gov.za/industrial%20development/ip.jsp) at no cost.

The rate of exchange quoted by the bidder in paragraph 4.1 of the Declaration Certificate will be verified for accuracy.

If the quantity of steel products, cables, plastic pipes and components for construction required cannot be wholly sourced from South African (SA) based manufacturers and/or at the designated local content threshold stipulated in paragraph 3.3. in SBD 6.2 bidders should obtain written exemption from the Department of Trade & Industry (DTI).

Bidders must clearly indicate in their bids the quantities to be supplied and the level of local content for each product.

A person awarded a contract in relation to a designated sector, may not subcontract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

7. Pricing

- All proposals are to include VAT and SANBI will assume that all pricing received is VAT inclusive and in South African Rand (ZAR). Service Providers must complete a cost breakdown to SANBI as described in this ToR, detailing the required hardware proposed.
- All prices must be tendered in accordance with the units specified in the Annexures.
- Foreign exchange rates used must be indicated (if applicable).
- Pricing template to be completed (Annexure C-E) (Please note: These Annexures must only be included in the pack marked 'Original' See section 14).
- All pricing will be final and binding.
- All pricing supplied in the Terms of Reference responses shall remain valid for a period of four (4) calendar months (120 days).

8. Occupation Health, Safety and Environmental Requirements

Service Providers will be expected to deliver on the Occupation Health and Safety Act (OHSA) and its regulations and the Compensation for Occupational Injuries and Diseases Act (COIDA) relating to health, safety and the environment.

It will be expected of potential Service Providers to execute ICT work in a manner that complies with all the requirements of the Acts and regulations and in doing so, minimise the risk of incidents/accidents occurring.

It will be expected of the potential Service Provider to supply an Occupational Health, Safety and Environmental file before signing the contract. This file will have to be approved by the SANBI Deputy Director: Health, Safety and the Environment before commencement of the contract. The Health, Safety and Environmental File will become SANBI property at the end of the contract.

9. Communication and Statement of Good Faith

All information provided by SANBI in this ToR is offered in good faith. Individual items are subject to change at any time. SANBI makes no certification that any item is without error.

Formal communications may include, but are not be limited to:

- Recommendations to SANBI in writing, regarding any discrepancies, errors or omissions which may exist within this ToR
- Recommendations to SANBI in writing, regarding any enhancements which might be in SANBI's best interests
- SANBI will make a good faith effort to provide a written response to each question or request for clarification that requires addenda within 5 calendar days. All questions and answers will be shared with all bidders registered at the compulsory briefing sessions

All technical information in this RFT should be directed to: ITTender@sanbi.org.za.

All bid related queries shall be directed to: Sanbi.tenders@sanbi.org.za.

SANBI will not respond to any questions or request for clarification which requires addenda if received after 6 March 2020

10. Evaluation Criteria

In accordance with the National Treasury Instruction Note on the Amended Guidelines in Respect of Bids that include Functionality as Criterion for Evaluation (issued 3 September 2010), this bid will be evaluated in the following stages:

The **first stage** will evaluate functionality according to the criteria listed in the table below.

The **second stage** will evaluate the price and preference points of those bids that meet the minimum threshold for functionality. In accordance with the Preferential Procurement Regulations, 2017 pertaining to the Preferential Procurement Policy Framework Act (No.5 of 2000), the 80/20-point system will be applied in evaluating proposals that qualify for further consideration, where price constitutes 80 points and a maximum of 20 points will be awarded on the bidder's B-BBEE Status Level Certificate.

CRITERIA FOR EVALUATING FUNCTIONALITY	Weight
Experience in providing similar solutions Bidders are requested to provide the following: - Bidders must have a minimum of 5 years' experience in providing similar solutions. Please attach a summary of projects completed successfully in the last 3 years including project description, role of company, project cost, duration of project and contactable references - Three (3) letters on a letterhead from clients where similar services have recently been implemented. Letters are to be signed and include contact details	35 (20) (15)
Technical skills of key personnel. Indicate the competence of key management and technical personnel who will be implementing the project Attach a project team structure, names of staff who will be responsible for carrying out the project, their qualifications, role in the project, and their technical expertise (Supply short CV's for each)	20
Approach and Methodology Supply a project implementation plan that includes the following: - Scope of Work - Installation - Testing - Quality Plan - Commissioning	45 (15) (10) (10) (5) (5)
Total	100

Bids that fail to score a minimum of 70 points out of a possible 100 points for functionality will not be eligible for further consideration.

Sufficient information must be provided to allow the Bid Evaluation Committee to evaluate submissions against these criteria.

11. Contract Period

The appointment as a successful Service Provider shall be subject to all parties agreeing to mutually acceptable contractual Terms and Conditions. In the event of all parties failing to reach an agreement within 30 days from the appointment date, SANBI reserves the right to appoint the second highest scoring bidder, or to re-advertise should that Service Provider not be acceptable.

12. Availability of Tender Documents

No tender documents will be issued at the briefing session. Potential Service Providers are requested to download the tender documents from the SANBI website: www.sanbi.org.

13. Submissions

Service Providers are to submit one (1) pack of the original proposal marked "ORIGINAL" in a separate envelope (pricing included) envelope #1 and 3 copies (pricing excluded) marked "COPY" in envelope #2.

Financial or pricing details should only be included in the pack marked "ORIGINAL".

Financial information included in the documents in the pack marked "Copy" will lead to your bid being disqualified.

Failure to submit 1 pack of original and 3 packs of copies, will lead to the bid being disqualified.

Closing date and time for submissions: 13 March 2020 at 11:00

Tenders can be submitted in the following manner:

Physical Drop Off

Drop off in the Tender Box located in the Biodiversity Building at the Pretoria National Botanical Garden, 2 Cussonia Avenue, Brummeria, Pretoria, Gauteng during office hours or on the closing date 13 March 2020 **by 11:00**. Normal office hours: 08:00–16:00 (See street address above).

Via Courier, addressed to:

The Deputy Director: Supply Chain Management

Biodiversity Building, Pretoria National Botanical Garden, 2 Cussonia Avenue, Brummeria, Pretoria, Gauteng during the hours 9:00–16:00 or on the closing date **13 March 2020 11:00**.

NB. E-mailed and faxed submissions will not be accepted. Late submissions will not be considered.

14. General

Unless specifically requested, all documentation submitted to SANBI will not be returned to the bidder. All received information will be treated with confidentiality by SANBI.

15.1 Non-Disclosure Agreement

SANBI reserves the right to require the successful bidder to enter into a non-disclosure agreement.

15.2 Costs

The ToR does not obligate SANBI to pay for any costs of any kind whatsoever that may be incurred by the potential Service Provider or any third parties, in connection with the submission.

15.3 Intellectual Property

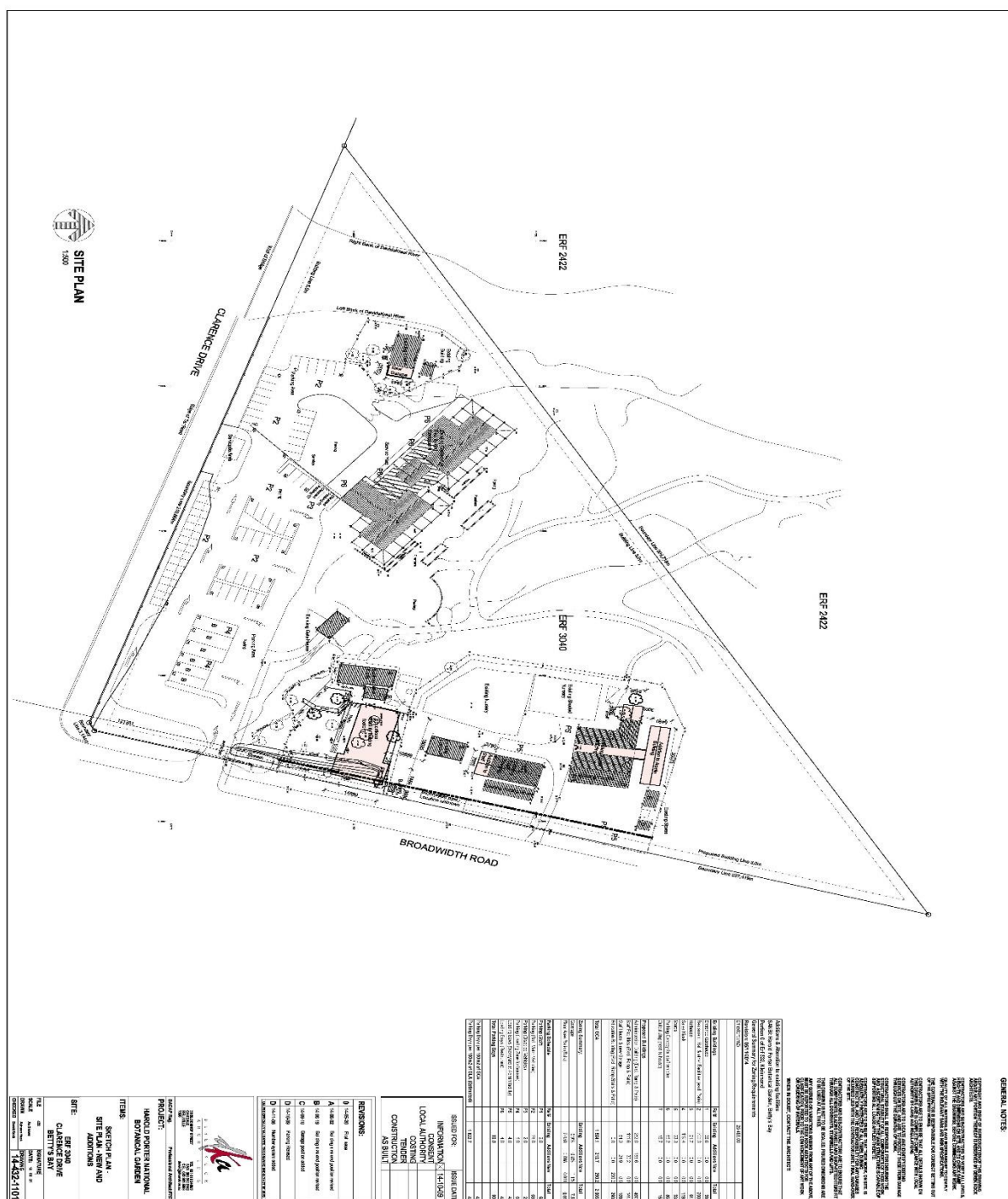
All submitted responses should not use any intellectual property of SANBI including, but not limited to: All logos, registered trademarks, or trade names of SANBI, at any time without the prior written approval of SANBI, as appropriate.

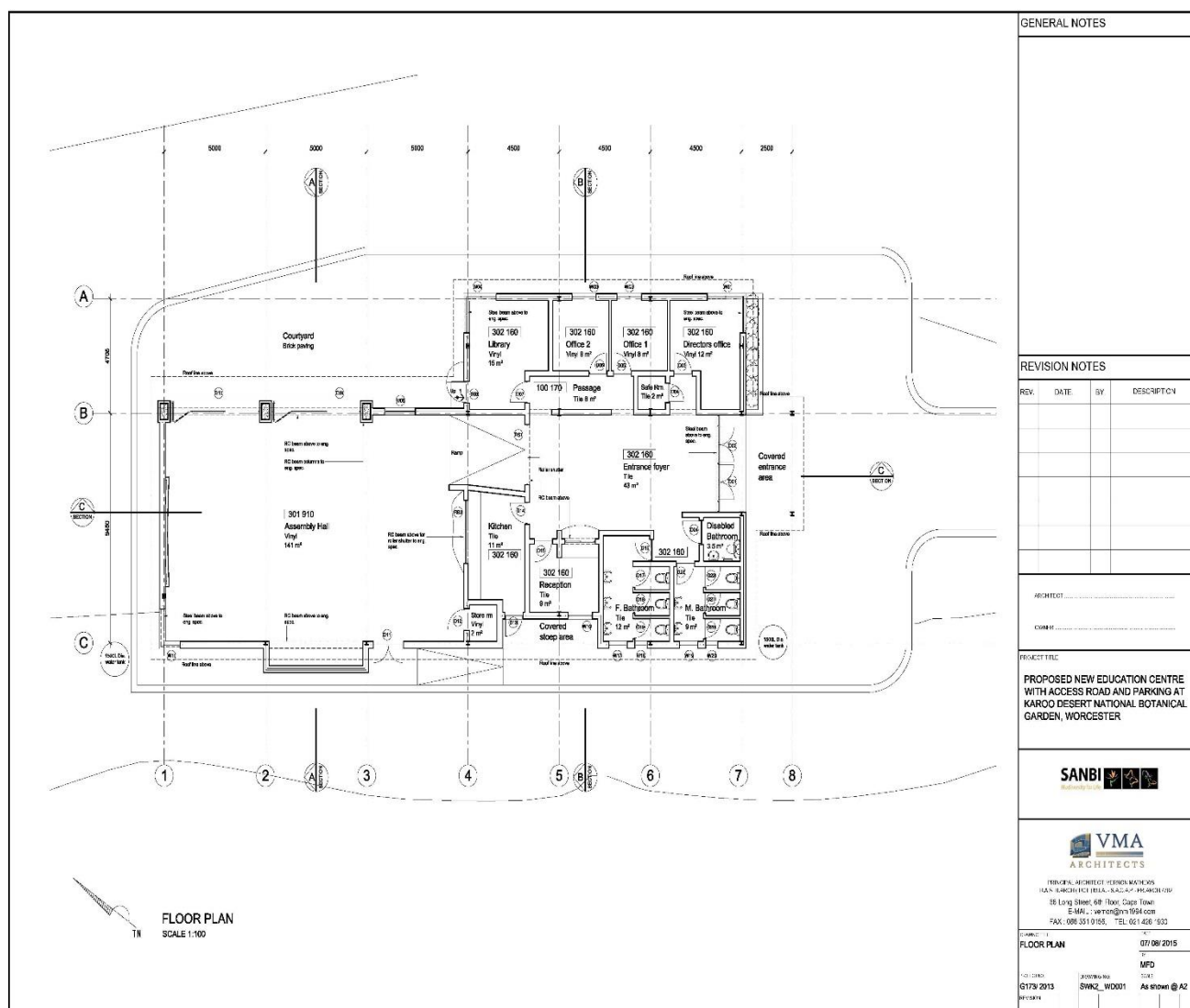
All documentation, software customisation and/or any intellectual property developed by the appointed Service Provider during the duration of this contract shall become the property of SANBI.

15.4 Liability

SANBI shall not be liable to any potential bidder, person, or entity for any losses, expenses, costs, claims, or damages of any kind:

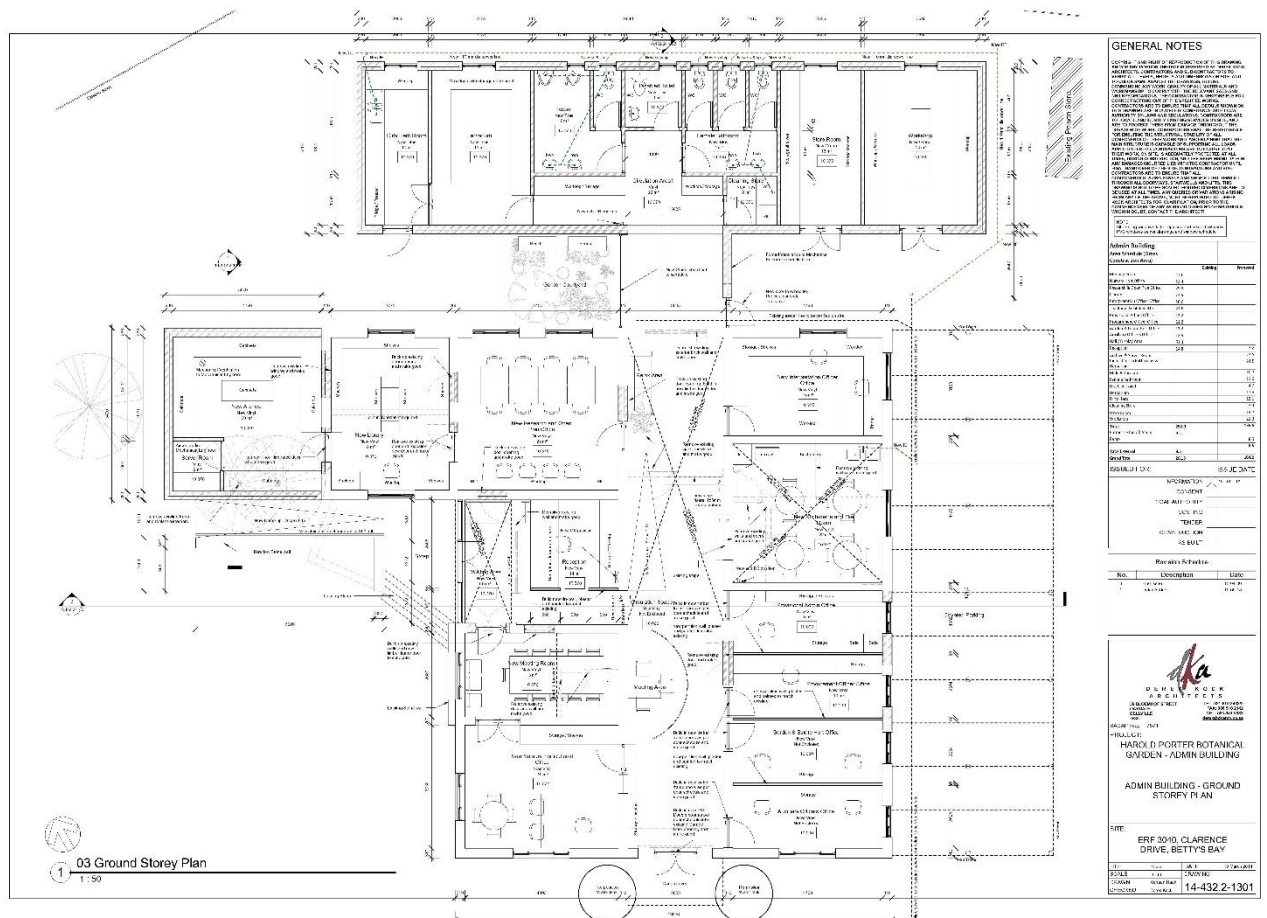
- Arising out of, by reason of, or attributable to, the bidder responding to this ToR, or
- As a result of the use of any information, error, or omission contained in this ToR document or provided during the process

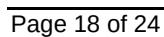




Building Name	Estimated Size
Hall	142 m ²
Library	15 m ²
Office 2	8 m ²
Office 1	8 m ²
Directors Office	13 m ²
Entrance Foyer	44 m ²
Kitchen	13 m ²
Reception	10 m ²
Storeroom	2 m ²
Ablutions	25 m ²
Total Size	280 m²

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Building Name	Estimated Size
Administration Block	339.5 m ²
Education Centre	400 m ²
Garden Entrance	12 m ²
Nivenia Hall	144 m ²
Total Size	280m²

Annexure C: Bill of Materials Estimation for Karoo Desert NBG

Karoo Desert National Botanical Garden				
Admin Building to New Education Centre				
No	Data Cabling	Unit	Est Qty	Total price
1	Supply and installation of a 15 u 500 + 100 cabinet, including 1 front mount flat 330 mm shelve, budget PDU	Ea	1	
2	Supply and installation of Krone Cat 6 Patch Panel	Ea	1	
3	Supply and installation of Krone Cat 6 data points, including 1 m patch lead and 3m fly lead	Ea	15	
4	Supply and Installation of brush panels	Ea	6	
5	Supply and installation of 1u plastic Blank plates	Ea	8	
6	Supply of wrap around labels for the patch leads	Ea	30	
7	Supply of dedicated power point for the cabinet	Ea	1	
8	Installation of network hardware	Ea	1	
Civils				
9	Trenching, soft soil (400mm D x 300mm W)	p/m	540	
10	7mm Nylon draw wire	p/m	560	
11	Removing and reinstate paving	p/m	50	
12	Imported backfill when trenching in rock ground p/cubic metre	p/m	5	
13	Installation of Rhinode 600mm SCM Manhole (Labour)	p/m	7	
14	Removing and reinstate tar	p/m	490	
15	Supply and Install of 110mm underground sleeve	p/m	540	
16	Debris	Ea	1	
17	Core holes (50mm)	Ea	1	
18	Sundries (Civils works)	Ea	1	
19	Installation of R600 PVC Manholes	Ea	7	
Fibre				
20	Supply of 8 Core SM HDD fibre between the Main gate and the New Educational building	p/m	700	
21	Installation of the fibre cable	p/m	700	
22	Supply and installation of Krone Fibre Panels	Ea	2	
23	Supply of SM pig tails	Ea	16	
24	Supply of Splice protectors	Ea	16	
25	Electronic Fusion Splicing of the Fibres	Ea	16	
26	Fibre Caution Tags	Ea	15	
27	Supply Of SM LC Midcouplers	Ea	16	
28	Supply Of SM LC-LC 1m Patch Leads	Ea	2	
Main Gate				
Data Cabling				
29	Supply and installation of a 12u Swing frame cabinet with a front mount shelve	Ea	1	
30	Supply and installation of Krone Cat 6 Patch Panel	Ea	1	

31	Supply and installation of Krone Cat 6 data points, including 1 m patch lead and 3m fly lead	Ea	3	
32	Supply and Installation of brush panels	Ea	2	
33	Supply and installation of 1u plastic Blank plates	Ea	8	
34	Supply of wrap around labels for the patch leads	Ea	6	
35	Installation of network hardware	Ea	1	
	Civils			
37	Trenching, soft soil(re-instate,backfill,compacting with warning and danger tape(400mm D x 300mm W)	p/m	215	
38	7mm Nylon draw wire	p/m	215	
39	Removing and reinstate paving	p/m	77	
40	Imported backfill when trenching in rock ground p/cubic meter	p/m	2	
41	Installation of Rhinode 600mm SCM Manhole (Labour)	p/m	6	
42	Supply and Install of 110mm underground sleeve	p/m	215	
43	Debris	Total	1	
44	Core holes (50mm)	Ea	1	
45	Sundries (Civil works)	Total	1	
46	Supply a 50mm core drill into the Gate House, includes a large PVC enclosure and a 500 slow bend	Total	1	
47	Installation of R600 PVC Manholes	Ea	7	
	Fibre			
48	Supply of 8 Core SM HDD fibre between the Main gate and the New Educational building	Ea	220	
49	Installation of the fibre cable	Ea	220	
50	Supply and installation of Krone Fibre Panels	Ea	2	
51	Supply Of SM pig tails	Ea	16	
52	Supply of Splice protectors	Ea	16	
53	Electronic Fusion Splicing of the Fibres	Ea	16	
54	Fibre Caution Tags	Ea	16	
55	Supply Of SM LC Midcouplers	Ea	16	
56	Supply Of SM LC-LC 1m Patch Leads	Ea	2	
	Switches & UPS			
57	Rackmount UPS	Ea	2	
58	HP Aruba 2530 24G PoE Switch	Ea	2	
59	HPE x121 1G SFP LC LX Transceiver	Ea	4	
	Subtotal			
	VAT			
	Total (Including VAT)			

Annexure D: Bill of Materials Estimation for Harold Porter NBG

Admin Building				
No	Data Cabling	Unit	Est Qty	Total price
1	Supply and installation of a 15u Swing frame cabinet, 450 + 200 collar, budget PDU and a fan	Ea	1	
2	Supply and installation of brush panels	Ea	4	
3	Supply and installation of a Krone Cat 6 Patch Panel	Ea	2	
	Supply and installation of Cat 6 Krone data points, including 1 m P/lead and 3m F/lead	Ea	39	
4	Supply and installation of Brady wrap around labels	Ea	80	
5	Supply of a 3 KVA UPS, tower unit to stand on the floor below the cabinet. Eaton E Series DX 3000H	Ea	1	
6	Supply and installation of blanking plates, plastic clip in plates	Ea	7	
7	Mounting of the AP units	Ea	2	
8	Supply and installation of 300mm wire mesh cable tray, to lie on the beam rafters	Ea	50	
9	Supply and installation of 100mm wire mesh cable tray, to lie on the beam rafters	Ea	20	
	Fibre			
10	Supply of a 8 core SM fibre from the Admin building to the new Educational Centre	Ea	120	
11	Installation of the Fibre	Ea	120	
12	Supply and installation of a fibre panel - Krone plastic	Ea	1	
13	Supply and installation of a LC SM Midcouplers	Ea	16	
14	Supply of SM unjacketed pig tails	Ea	16	
15	Supply and installation of splice protectors	Ea	16	
16	Electronic fusion splicing	Ea	16	
17	Fibre labelling - Caution labels as well as Arrow tags with heat shrink	Ea	1	
18	Supply of SM LC-LC Fibre Patch Panel	Ea	2	
	New Education Building			
19	Stripping out of the 25u floor standing cabinet in the curio shop, moving the cabinet to the storage on Site	Ea	4	
20	Supply and installation of 15u swing frame cabinet, 200 + 450 box, includes a fan and dusdget PDU	Ea	1	
21	Supply and installation of brush panels	Ea	4	
22	Supply and installation of a Krone Cat 6 Patch Panel	Ea	1	
23	Supply and installation of Cat 6 Krone data points, including 1 m P/lead and 3 m F/lead	Ea	14	
24	Supply and installation of Brady wrap around labels	Ea	30	
25	Supply of a 3 KVA UPS, Floor standing into the 15u	Ea	1	
26	Mounting of the AP units	Ea	1	
	Conference Centre			

27	Supply of a 8 core SM fibre from the Main gate - Conference Centre	Ea	180	
28	Installation of the Fibre	Ea	180	
29	Supply and installation of a fibre panel - Krone plastic	Ea	1	
30	Supply and installation of a LC SM Midcouplers	Ea	16	
31	Supply of SM unjacketed pig tails	Ea	16	
32	Supply and installation of splice protectors	Ea	16	
33	Electronic fusion splicing	Ea	16	
34	Fibre labelling - Caution labels as well as Arrow tags with heat shrink	Ea	1	
35	Supply of SM LC-LC Fibre Patch Panel	Ea	2	
	Main Gate			
36	Supply of a 8 core SM fibre from the Main Gate to the new Educational Centre	Ea	160	
37	Installation of the Fibre	Ea	160	
38	Supply and installation of a fibre panel - Krone plastic	Ea	1	
39	Supply and installation of a LC SM Mid Couplers	Ea	16	
40	Supply of SM unjacketed pig tails	Ea	16	
41	Supply and installation of splice protectors	Ea	16	
42	Electronic fusion splicing	Ea	16	
43	Fibre labelling - Caution labels as well as Arrow tags with heat shrink	Ea	1	
44	Supply of SM LC-LC Fibre Patch Panel	Ea	2	
	Civils			
45	Trenching, soft soil	p/m	168	
46	Lawn breaking and reinstatement	p/m	126	
47	Removing and reinstate paving	p/m	59	
48	Supply and installation of Rhinode 600mm SCM Manhole	Ea	3	
49	Supply and installation of Brady wrap around labels	Ea	50	
50	Supply of a 100mm to 50mm reducer	Ea	7	
51	Supply of 50mm flexi sleeve	p/m	66	
52	Supply of 25mm Bosal piping, including saddles, bends, coupling and male adapters	p/m	5	
53	Supply of 50mm flexi sleeve	p/m	5	
54	Labour to install the bosal piping	p/m	5	
	Switches and UPS			
55	Floor standing 3kva UPS	Ea	1	
56	HP Aruba 2620 24G PoE Switch	Ea	1	
57	HP Aruba 2620 48G PoE Switch	Ea	1	
58	HPE x121 1G SFP LC LX Transceiver	Ea	6	
	Subtotal			
	VAT			
	Total (Including VAT)			

Annexure E: Solution Costs

Total Solution Costing Detail including VAT

Item No	Item Description	Cost
1.	Harold Porter NBG	
2.	Karoo Desert NBG	
Total (Vat incl)		