PU8010/028

C3.1 Scope of Work

1. BACKGROUND

The VUT requires the services of a Professional Team for the Design and Construction Monitoring (Stage 1-6) for the Access and Visitor Control & Command Centre at Science Park Campus.

2. PROFESSIONAL SERVICES REQUIRED FOR STAGES 1-6

Based on the Project Requirements, the following Professional Services for Normal Services are required:

- Architect (Lead the Consultant Team & act as Principal Agent during sages 5&6)
- Quantity Surveyor
- Civil/Structural Engineer
- Electrical Engineer
- Electronic Engineer
- Mechanical Engineer

These services can be delivered via one of three different approaches:

- The Architect as Principal Agent appoints the rest of the Professional team as sub-consultants.
- A Joint Venture comprising the whole Professional team with the Architect as Principal Agent taking the lead.
- A Consortium comprising the whole Professional team with the Architect as Principal Agent taking the lead.

3. PROJECT STAGES

1. Stage 1 : Initiation
2. Stage 2 : Concept and Viability
3. Stage 3 : Design Development
4. Stage 4 : Documentation and Procurement
5. Stage 5 : Construction
6. Stage 6 : Close Out

4. PROJECT SCOPE

4.1 The Visitor Control Centre for the Residences at Main Campus must be designed to DHET norms and must include:

The purpose of the Access and Visitor Control and Command Centre is to control access of students, staff, visitors and delivery vehicles to the campus and residences. The project will provide biometric controls to allow/monitor access for staff, students and visitors. This new development will provide the ability to screen individuals as they enter 73

and monitor their access into the campus and residences in a controlled manner through access control software. The system of operations will be through a once off access and exit pin which can be easily deactivated during a situation beyond normal visiting hours. The new turnstiles and vehicle gates and surveillance cameras that would also be linked to the Natis system to verify vehicle registrations.
A new double storey building will be built at the present Main gate adjacent to the Residences. The bottom floor will house amongst others a reception, ablutions and offices, the first floor will house a server room, surveillance room, supervisor office, and kitchenette. The building and systems operated from here must be powered through a solar array linked to an inverter and a battery system to ensure the electrical power will not be affected by normal load shedding.
The building will have a Command Centre and a Control Centre. The Command centre monitors the cameras covering the buildings as well as the emergency security and fire systems in the buildings. The Command Centre escalates action issues to the Control Centre. The Control centre monitors the access points via biometrics, card reading, boom control and cameras. The distance from the Main campus requires that the Science Park campus have its own Command centre at Science Park.
The entrance gate will require two sets of automated gates per lane one in front of the boom and one in the rear behind the vehicle, a new kiosk for the guards at the gate will be situated between the two lanes and a light steel roof covering the entrance gate area. The kiosk will require an ablution and a kitchenette. Access to the Residences will be provided through a new access gravel road and gate entering the Residence parking area from the South. The Campus will retain the existing entrance but will receive a boom and biometric controls.
The Professional design team will work in close cooperation with our Protection Services regarding the security, monitoring and control equipment and systems to be implemented.
For more details see below:
On Ground floor:
A Visitor Reception area:
A Security Service area on ground floor comprising of:

- Offices for Liaison Officer and 2 Investigators
- Charge Room, for one Investigator, Guard Commander & Security Officer
- Holding Rooms, one for male and one for female. Each with toilet and hwb.
- Gun safe room
- Service Desk area
- Kitchenette
- Ablutions
- Card Section for one operator.

On First Floor area:

- Staircase to first floor
- Command Centre - housing 3 Survey stations, 1x call centre, 1 x fire response, 1 x ops officer and 2 x SAPS desks
- Command Centre ablutions.
- Launching area for drone
- Store for drones
- Server room with raised access floor
- Records Rom
- Board room with 15 seater table and buffet area
- Kitchen for board room
- Operations Manager office
- Office for supervisor
- Kitchen close to Command Centre Door
- Store Room for cleaner
- Locker Room
- Ablutions for Board room and offices
- Room for Inverter and backup batteries
- Lift for disabled and equipment

Roof over First Floor:
- Roof to be a concrete roof and also accommodate water storage and solar panels.

The Entrance Gate will require the following renovation:
- New automated main vehicle gates to the rear and at the booms required
- A new Guard house will be built between the in/out lanes and enclosed between the two sets of vehicle gates. The guardhouse will have its own ablution facility and kitchenette and will receive back-up electrical power.
- Biometric controls for vehicle access will be provided.
- The existing perimeter fence will be re-aligned to adjust to the new site layout.
- New turnstiles for pedestrians with biometric controls to be provided.
- Surveillance cameras, biometrics and facial recognition to be linked with fibre.
- A new Roof structure over the Vehicle entrance will be required

A parking facility must also be created for staff and visitors whom have to stop at the Visitor Control & Command Centre. More specific Discipline related details of the Scope is also discussed per Disciplines in Par 5.3 & 5.4

4.2 The Consulting Services for the Built Environment under specific disciplines, to design, implement, monitor and submission of Close Out Report as follows:

• Preliminary Designs and Specifications for approval by the VUT,
• Preparation of and submission of Preliminary Design Concept Report,
• Preparation of Design Specifications and Reports,
• Submissions of Design Report and revised specifications (both Technical and Functional),
• Preparation of Preliminary Cost Estimates and format for overall cost reporting in consultation with the appointed Quantity Surveyors,
• Preparation of Working Drawings, Specifications and Tender Documents,
• Submission of Building Plans and Specifications for approval by EMFULENI LOCAL MUNICIPALITY'
• Co-ordination of all activities within the appointed consultants and production of consolidated plans showing all services,
• Contract Administration Services.
• Co-ordinate Project/Site Progress Meetings with the Contractor and all consultants.
• Undertake room by room data sheets and fit out schedules.

5. PROJECT DELIVERABLES PER CONSULTANT

5.1 Architectural/Principal Agent

The Services & Deliverables are as per "**BOARD NOTICE 91 OF 2020 -** Final Guideline Professional Fees issued in terms of Section 34 (2) of the Architectural Profession Act, 2000 Act 44 of 2000" for Standard Services and acting as Principal Agent. The following are merely illustrative extracts from these services:

• Developing Concept Design for Approval by Client,
• Design Development/Design Report,
• Coordination of Design Development with the Professional Team and Client,
• Construction Drawings Development,
• Co-ordination of all activities within the appointed consultants and production of co-ordinated plans showing all Services,
• Submission of Building Plans and specifications for approval by EMFULENI LOCAL MUNICIPALITY,
• Contract Administration Services,
• Co-ordinate Monthly Management Meetings,
• Project Design and Co-ordination and Programming Meetings,
• Programming and close monitoring of Project Creep,
• Project programming and Project Cash flow,
• Material and equipment ordering Schedules,
• Certification of all Contractor Payment Claims,

• Processing and submitting of all Consultants Fee Claims,
• Provision of Monthly Progress Reports,
• Issuing of Practical Completion Certificates,
• Issuing of Completion Certificate and Final Completion Certificate,
• Compilation and Issuing of Close-out Report,
• Submission of Final Account as produced by the appointed Quantity Surveyor.

5.2 Quantity Surveyor
The Services and Deliverables are as per "**BOARD NOTICE 170 OF 2015 -** Guideline Tariff of Professional Fees issued in terms of Section 34 (2) of the Quantity Surveying Profession Act, 2000 Act 49 of 2000" for Building Works Services . The following are merely illustrative extracts from these services:
• Elementary Cost Estimate,
• Measuring Quantities as per Construction Drawings,
• Preparation of Bills of Quantities in line with the Construction Drawings,
• Measurements of Approved Work Done on Site,
• Preparation of Contractor's Payment Certificate,
• Managing of Variation Orders and Escalations,
• Submission of Monthly Project Cost Reports and Cash flow Projections, • Preparation of Final Account,
• Close Out Report.

5.3 Civil/Structural Engineer
The Civil and Structural Engineer will be responsible for all Civil Engineering and Structural Services. Civil Services will include bulk earthworks, paving design for the parking area and associated driving lanes, also the new gravel access road to the Residence parking area, external water, fire water provision and external sewage drainage as well as roof and storm water drainage in consultation with the Architects and other consultants under all stages.
The Services and Deliverables are as per "**BOARD NOTICE 22 OF 2021 -** Guideline Professional Fees (Scope of Services and Tariff of Fees for Persons Registered in terms of the Engineering Professions Act, 46 of 2000) for Normal Services. The following are merely illustrative extracts from these services:
• Preliminary Designs and Specifications for approval by the VUT,
• Preparation of and submission of preliminary design concept Report,
• Preparation of design specifications and Reports,
• Submissions of design report and revised specifications (both Technical and Functional),
• Preparation of Preliminary Cost Estimates and format for overall cost reporting in consultation with the appointed Quantity Surveyors,
• Preparation of Working Drawings, Specifications and Tender Documents (BOQ) related to his area of expertise,
• Submission of Building Plans and specifications for approval by EMFULENI LOCAL MUNICIPALITY,
• Contract Administration Services within his area of expertise.

Level 2 site supervision for reinforced concrete elements will be expected form the Structural Engineer as an Additional Service –. (To be priced into Part 2 Pricing Data, Par C2.2 Activity Schedule - Item 1.3.1 of Additional Services.

5.4 Electrical, Electronic and Mechanical Engineer
The Electrical Engineer will be responsible for all Bulk and all Electrical engineering related matters in consultation with the Architects and other consultants. Provision to be made for all security lights and camara lighting to be connected in the future (not this project) to the solar system at the new Control centre.
The Electronic Engineer will assist, in conjunction with the Protection services Team with the specifications for the surveillance equipment and biometric scanners and the integration of these systems into the computerised monitoring systems via the consoles (Approximately 4 manned work stations). He will also deal with any low voltage systems, such as the intercom system for emergency response systems (fire, panic, alarm) and make provision future connections to the residence campus from the Control centre. The intercoms for the vehicle and pedestrian gates 76

must be provided under this contract to be linked to the Control Centre. The server room will also be biometrically controlled, the same applies for access to the Solar battery and inverter system.
The Mechanical Engineer will be responsible for Fire Safety services and design, HVAC and all Mechanical Engineering related matters such as internal water and internal waste water piped systems in consultation with the Architects and other consultants.
The Services and Deliverables are as per "**BOARD NOTICE 22 OF 2021 -** Guideline Professional Fees (Scope of Services and Tariff of Fees for Persons Registered in terms of the Engineering Professions Act, 46 of 2000) for Normal Services. The following are merely illustrative extracts from these services:
• Preliminary Designs and Specifications for approval by the VUT,
• Preparation of and submission of preliminary design concept Report,
• Preparation of design specifications and Reports,
• Submissions of design report and revised specifications (both Technical and Functional),
• Preparation of Preliminary Cost Estimates and format for overall cost reporting in consultation with the appointed Quantity Surveyors,
• Preparation of Working Drawings, Specifications and Tender Documents (BOQ) related to his area of expertise,
• Submission of Tender Reports and recommendations for sub-contractor appointments,
• Submission of building plans and specifications for approval by EMFULENI LOCAL MUNICIPALITY,
• Contract Administration Services within his area of expertise.

5.4 For all Professional Consultants
• For stage 6 – Close Out Stage, all documentation such as: Operational & Maintenance Manuals, Guarantees and warranties are be provided in electronic form, preferably in PDF format.
• For stage 6 – Close Out Stage, all as Built drawings and documentations are to be provided where possible in DWG and PDF Format.

6. ADDITIONAL SPECIALIST SERVICE PROVIDERS REQUIRED (DURING STAGE 1 ONLY)
The Professional Team must allow for the services of specialist service providers as follows:
• Professional Land Surveyor
o He must be professionally registered o Have PI Insurance cover of at least R5m
o His land survey must be comprehensive enough to provide the appointed professional team with sufficient information on the site and surrounding buildings, roads, underground services and the area between the new HS Building and the spruit south of the HS Building to accommodate a new parking facility similar to existing. The Survey must be comprehensive enough to enable the professional team to do complete their detailed designs for this project.
• Professional Geotech Engineer/ Technician:
o He must be professionally registered o Have PI Insurance cover of at least R10m
o His services will be required to conduct a geotechnical investigation, produce a geotechnical report with findings and recommendations, advise on the number of test holes and type of soil tests required by an accredited Laboratory to enable him to:

✦Advise the Professional team on foundation conditions for the planned building
✦Recommend appropriate founding solutions for the planned building
✦Advise on layer works for the surface beds of the building (if any) and any vehicle pavements to be designed such as the new parking facility adjacent to the new Visitor Control Room.
✦Advise on backfill material for underground services
✦Advise on precautions for trenches or foundation excavations.
• Geotechnical Laboratory

o The services of an accredited Geotechnical Laboratory is to be used for the soil testing and excavations required by Geotechnical engineer. The tests to be carried out and the test holes are expected to be
These Specialist Service Providers services must be priced for in the Activity Schedule (C2.2) as their services form part of the Scope of this tender.