**AIR TRAFFIC AND NAVIGATION SERVICES SOC LTD**

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**APPOINTMENT OF A SERVICE PROVIDER FOR THE ACQUISITION OF A 3-D AIRPORT MODELLING TOOL FOR THE DESIGN AND SIMULATION OF A REMOTE AIR TRAFFIC SERVICE (RATS) DIGITAL TOWERS CONCEPT TO BE IMPLEMENTED AT OR TAMBO INTERNATIONAL AIRPORT (FAOR) AND OTHER SELECTED SOUTH AFRICAN AIRPORT**

**REQUEST FOR PROPOSAL: ATNS/ATA/RFP024/FY22.23/3-D AIRPORT MODELLING TOOL**

**TECHNICAL AND PROJECT MANAGEMENT REQUIREMENTS DOCUMENT (VOLUME 2&3)**

 **AUGUST 2022**

**The information contained within this document is confidential to ATNS in all respects and it is hereby acknowledged that the information as provided shall only be used for the preparation of a response to this document.  The information furnished will not be used for any other purpose than stated and that the information will not directly or indirectly, by agent, employee or representative be disclosed either in whole or in part, to any other third party without the express written consent by the Company or its representative.**

1. **Response to this document**

The Tenderer shall submit all responses, diagrams, project management documentation and drawings according to the GENERAL INFORMATION AND INSTRUCTIONS TO TENDERERS document and in the English language.

To assist Tenderers only, each paragraph or article has been appended throughout with the letters “(M)”, “(D)”, “(O)” or “(I)”, to indicate whether the requirement is **M**andatory, **D**esirable, **O**ptional or for **I**nformation only.

**ALL RESPONSES TO THE REQUIREMENTS IN THIS DOCUMENT SHALL BE PROVIDED AS FOLLOWS:**

TENDERERS SHALL RESPOND IN FULL TO EACH ITEM IN THE FORMAT PROVIDED AND REFERENCES TO DOCUMENTS AND RELEVANT INFORMATION SUPPORTING THE RESPONSES SHALL BE INDICATED IN THE SPACE PROVIDED. THIS INFORMATION WILL BE THE **ONLY RESPONSE USED FOR THE EVALUATION AND ASSESSMENT**.

Responses, provided in the space allowed, that are not clear or inadequate or the lack thereof shall be interpreted as **“Not Compliant”** even though the compliance column is declared as “Comply” and/or the Tenderer’s offer meets the requirement.  Tenderer’s shall ensure that each response correctly addresses the requirement stated. Responses not addressing the requirement of the specific paragraph shall be interpreted as **“Not Compliant”**.

Tenderer’s shall declare compliance to each and every paragraph of this document in the column labelled “Compliance” as follows:

C:             fully compliant = 2 points:

PC:           partly compliant = 1 points;

NC:           not compliant = 0 points.

For paragraphs marked “PC” or “NC”, Tenderer’s shall include a statement as to the nature of the variation and may additionally supply supporting information in the space provided to demonstrate how the proposal meets the needs of ATNS.

1. **PURPOSE OF THE BID**

The acquisition of a 3-D airport modelling tool for the design, simulation and modelling of a Remote Air Traffic Service (RATS) Digital Towers concept to be implemented at or tambo international airport (FAOR) and any other selected South African airport. The modelling tool is intended to model both airport ground & air infrastructure and the conventional tower. The final model and simulation is to verify the remote air traffic services concept.

1. **Project Scope**

The scope of this project is to supply, install and commission an airport 3D modelling tool / system. Furthermore, the scope includes the training of selected ATNS personnel on the use of this system.

1. **3D AIRPORT MODELLING TOOL SYSTEM REQUIREMENTS**
	1. **General Requirements**
2. The system shall include an airport building function that allows you to create your own airport layout changes.

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| **COMPLIANCE (C/PC/NC)** | *Only responding C/PC/NC will not be accepted without proof.* |  |
| *[INSERT FULL RESPONSE FOR EVALUATION HERE]* |
| *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The airport building functions shall include airport aprons, taxiways, runways and parking stands for FAOR as well as any other selected South African Airport.

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1. The airport building function shall include a Scene Editor and Aircraft Editor,

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1. The airport building function shall include real-time quick editing tool to allow change of scenery and building models and aircraft.

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1. The airport building function shall include a close to real-time quick editing tool to allow change of scenery and positioning of new equipment to facilitate the digital tower concept.

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1. The system shall allow you to create a 3-D model which allows you to replica of the intended Digital Towers concept model. to develop and modify your complete 3D environment.

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1. The system shall allow you to insert additional tools which allow you to quickly create or modify 3D aircraft and vehicle assets.

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1. The system shall be able to model the conventional tower to the intended digital tower.

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1. The digital tower model produced by the system shall be able to produce the same functionality as a conventional tower.

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1. The system shall offer a full turnkey air traffic control simulation and modelling based on the Remote Air Traffic Service CONCEPTS.

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* 1. **Technical Enablers**
1. The system shall provide both 2D and 3D capability simulation and modelling of all communication navigation and surveillance at the airport for the designing of the digital tower concept.

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1. The system shall be able to simulate and model the environment for all Remote Air Traffic Services Modes of operation (single and multi-mode).

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| *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The system shall be able to provide for simulation and modelling of visual surveillance which is a subsystem of the:
2. A visual surveillance system is a subsystem of remote digital tower. Several elements such as sensors, data transmission links, data processing system and situation display are integrated to form a visual surveillance system.

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1. The system shall be able to simulate and model the Signalling lamp: (remotely controlled) a remote digital tower should have means to send remote commands to the signalling lamp and be able to detect system failures.

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1. The system shall be able to simulate and model all Aerodrome sound reproduction: in remote digital towers an ATCO/AFISO is unable to detect the naturally occurring sounds of the aerodrome, a function that captures and relays aerodrome sound may be introduced.

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1. aerodrome sound reproduction functionality would be an enabler for increased situational awareness and could create a greater sense of presence.

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| *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The system shall be able to model and simulate all Communication: like conventional tower facility, there is a requirement for voice/data communication to enable ground-ground and air-ground communication. This also includes voice/data recording requirements.

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1. The system shall be able to simulate and model the Management of navigation aids, aeronautical ground lights, crash alarm and other aerodrome assets.

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1. The system shall be able to model and simulate all Meteorological information.

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1. The system shall be able to provide cameras which shall be placed anywhere on the airport for simulation purposes.

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1. The system shall detail and provide specification of the various types of built in equipment: cameras, datalinks, data processing network and etc. This is to ensure that the simulated requirement can be modified to ensure that the modelling objective is achieved. (eg; selecting from a variety of equipment available in the database)

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1. The system shall include a database for all simulation components to enable a user to modify or define new components as required.

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1. The system output shall be capable of interfacing on/to multiple displays (eg;3D Layout, Video wall and etc).

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1. A display screen (video wall or etc) shall be provided with the system for displaying purposes. This is to assist in providing an out of window view as it would be observed from a conventional tower.

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1. The system shall be able to simulate the incorporation of Infra-red or other optical sensors/cameras: for improving visibility primarily during hours of darkness.

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1. The system shall be able to simulate Radar tracking: from surveillance systems/sensors e.g. ADS-B, PSR, SSR, A-SMGCS, etc.

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1. The system shall be able to model and simulate Visual tracking of any moving objects which can be observed through conventional tower or as per equipment placed for design purposes.

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1. The system shall be able to simulate and model a foreign object detection as part of replicating the remote air traffic services.

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1. The system shall be able to simulate Visual information overlay: overlaid information in the visual presentation such as framing and/or designation of runways, taxiways, etc., compass directions, meteorological information, aeronautical information (NOTAM, SNOWTAM, etc.), other operational information.

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1. **PROJECT MANAGEMENT**
2. The service provider shall include Project Management Plan for the implementation of 3D Modelling tool/system.

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1. The service provider shall include Project Delivery Schedule and Scope Management 3D Modelling tool/system.

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1. The service provider shall include a Resource Management Plan for the implementation of 3D Modelling tool/system.

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| *[INSERT REFERENCE TO ADDITIONAL INFORMATION HERE]* |

1. The service provider shall include a Risk and Quality Management Plan for the implementation of 3D Modelling tool/system.

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1. The service provider shall include a Communications Management Plan for the duration of the project

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1. The service provider shall include an Installation and Commissioning Plan for the implementation of the 3D Modelling tool/system.

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1. **INTERGRATED LOGISTICS SUPPORT**
2. The service provider shall provide an Integrated support Plan 3D Modelling tool/system.

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1. The service provider shall provide a Configuration Management Plan of the 3D Modelling tool/system.

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1. The service provider shall provide a Maintenance and support proposal of the 3D Modelling tool/system.

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1. The service provider shall provide user Training of the 3D Modelling tool/system. All remote air traffic services

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1. The service provider shall provide all System Documentation (Specifications, Datasheets, Systems engineering documentation, Operational Manual, Training Manual and etc).

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1. **Capability Requirements**
2. The service provider shall provide extracts [screenshots of user interfaces etc.] of the systems functionality.

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