SOF Connect
SOFIA INTERNATIONAL AIRPORT

31st January 2022

Status: 1st edition – 01

Tender Specifications

Baggage Handling System Engineering Services and Project Management Consultancy

SOF Connect
SOFIA INTERNATIONAL AIRPORT

DOCUMENT REFERENCE:

Project Code	Company Code	Area Code	Floor Level	Document Type	Discipline	Document Number	Revision
0100	01	00		RFP	BHSC	101	00

DOCUMENT VERIFICATION:

Client	:	SOF Connect
Project Name	:	Sofia International Airport Terminal 2 Expansion and Upgrade
Document Title	:	Baggage Handling System Consultancy

Revision	Date	Comments	Prepared by	Reviewed by	Approved by
00	31/01/2022	First edition	L.MAUGIS	L.MAUGIS	L.MAUGIS

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INTRODUCTION

This document describes the engineering consultancy services under tender by SOF Connect, airport operator of Sofia, Bulgaria, to assist in the framework of the modernization programme of Sofia International Airport.

This modernization programme includes the supply, delivery, installation, testing, commissioning of a new baggage handling system.

The owner of this project and Client is SOF Connect, the Employer.

The chosen company for this mission will be hereby mentioned as "the BHS Engineer".

CONTEXT OF PROJECT

The existing Hold luggage BHS was commissioned in 2006 and its replacement has been long overdue as it suffers from many technical issues.

SOF Connect seeks the replacement of the departure and arrival hold baggage system (HBS), including:

- Conveyors (transport conveyors, vertical sorters)
- Make-up carousels
- Arrival carousels
- Check-in counters
- Hold Baggage screening equipment with EDS (ECAC Standard 3.1 Explosives Detection Systems)
- IT Specifications for procurement and installation of MCT,BRS, SACS,CCTV,ACS

The objective of the project are

1. to integrate new EDS standard 3.1 required by the EU regulations, including modifications of the security level of the existing BHS.
2. to increase the existing system's capacity to achieve the global throughput of the T1 and T2, plus progression of the traffic until 2030 at the minimum.

The project shall include

- Main Works, for all building modifications.
- BHS upgrade for the BHS system integrator
- EDS Screening, for replacement of EDS screening.

The project will include to:

- Add additional new check in desks in 2 islands in the existing area to have globally up to 54 check in desks,
- Install 2 EDS lines to control and secure 100% of the checked in baggages,
- Have the possibility to add a third line later to give more capacity for the future,
- Have 3 new make up carrousels for manual sorting at the minimum plus some lateral's conveyors (if possible),
- Implement system's redundancy to maintain capacity in case of a failure of important element (collector, EDS, carousel…).
- Update and replace SCADA and added SAC configuration and connexions with BRS and AODB
- Maintain capacity during the modifications of the BHS.
- Implement new FTTO IT Network with core switches

It will be required to:

- Add additional new checkin desks in 2 islands in the existing area to have globally circa 54 checkin desks,
- Install 2 EDS lines to control and secure 100% of the checked in baggages,
- Have the possibility to add a third line later to give more capacity for the future,
- Have 3 new make up carrousels for manual sorting at the minimum plus some lateral's conveyors (if possible),
- Implement system's redundancy to maintain capacity in case of a failure of important element (collector, EDS, carrousel…).
    - Update and remplace SCADA and added SAC configuration and connexions with BRS and AODB
    - Maintain capacity during the modifications of the BHS.
    - The system must follow EU regulations and should be in service by august 2023.

The future system will have:

- An estimated throughput of 2200 Bag:h until 2400 Bag/h,
- 54 checkin (currently 39 in T2 and 18 in T1) grouped in 2 islands,
- 2 EDS standard 3 including servors and operator terminals,
- An Xray MV for OOG bags,
- 3 make-up carrousels,
- Laterals make-up if possible,
- A new SCADA,
- A simple SAC for allocation on the manual carrousels,
- ATR or Bar code reader for sorting and associating security status on each bag,
- Internal BRS system to track the bag and give airport reports and statistics.

SCOPE OF SERVICES

The scope of the BHS Engineer is assist SOF Connect in the following tasks

1. The preparation of tender documents and technical specifications for upgrade of Hold Baggage Handling System at Sofia International Airport (departure and arrivals),
2. the validation and upgrade of technical documents related to the supply of EDS3 screening equipment
3. Technical assistance for validation of design, planning, strategy of BHS Contractor and related interfaces.
4. Technical assistance during procurement and tender process, questions and answers,
5. Analysis report and recommendations of bidders, assistance up to contract award
6. Baggage Handling System replacement planning, installation, phasing
7. Technical assistance during planning, design, procurement, delivery, installation, erection, process

Role and objectives of Consultant

1. The BHS Engineer shall be the lead Employers' representative for the BHS system and all its components for the upgrade of the BHS system (technical specs, phasing of works, decommissioning of legacy systems, commissionning of new equipment)
2. Notably, he shall participate to meetings with the Project Manager appointed by SOF Connect for the implementation of the project and its interfaces

PHASE 1 - TENDER PREPARATION AND ASSISTANCE FOR CONTRACT AWARD

The BHS Engineer is to prepare a tender for full BHS and related IT systems and interfaces.

This will include

1. Analysis of the concepts developed so far including phasing arrangement
2. Discussion about tender strategy for EDS, IT system like BRS, CUTE
3. Tender document for BHS (including, SCADA, SAC) and maintenance elements
4. Review of tender documents for EDS (including Xray DV, network configuration and operators)

Detailed technical description and requirements for check-in, transport lines, sortation, hold baggage screening, baggage make-up, arrival and reclaim system, transfer baggage in-feed, manual encoding, automatic tag reading (optical/RFID options), PLC zones, E-stop zones, Baggage Reconciliation System, BHS network and backbone campus network requirements and compatibility, Bag diversion, Fallback and redundancy, Bag tracking for sorting and security, Control Room setup, Tub management, O&M options including warranty and defect liability requirements.

IT design to be based on FTTO with ring topology for redundancy, extractible bundles cabling (12 bundles of 12 fibers per cable) and 2 core switches, firewalls and identify manager, racks and cabinets, structured cabling and ruggedized zone distribution boxes. (high level specs prepared with SOF Connect).

Technical and operational requirements for

- HBS requirements based on EU EC regulation (1087-2011 and 185E) and TSA Level 3 certification requirements;
- Continuous Handling Equipment and Systems Safety and EMC requirements for equipment for mechanical handling of unit loads based on EU DIN EN 619; High Level controls including server redundancy; Compliance with IATA Res 740 for bag tags, IATA RP 1745 for bag messaging, IATA RP 1740B for fallback tags, IATA Res 753 for bag tracking
- Testing and commissioning requirements incl. FAT requirements and site testing
- Conveyor belt options for various system parts
- Variable frequency drive motors requirements (to avoid bag movement and loss of tracking)
- General engineering standards in regard to cabling, cable tagging, debris trays, under-guarding, side guarding and gap management.

PHASE 2 - PLANNING, DESIGN AND PHASING, PROCUREMENT MONITORING

The BHS Engineer shall review the planning, design and phasing of works and notably all documents submitted by BHS contractor.

The BHS engineer will notably review

- Layout and technical drawings review
- General functional analysis review
- System's architecture review
- Planning time schedule analyse
- Test program follow-up

This will include

1. Layout and side views
2. Platform sketch
3. Access and circulations drawing
4. Equipment list
5. Technical equipment description
6. Functional description
7. Controls and software architecture
8. IT specifications
9. Layout and side views
10. Platform sketch
11. Access and circulations drawing

12. Equipment list
13. Technical equipment description
14. Functional description
15. Controls and software architecture

The BHS Engineer shall assist to regular planned VC and on-site meetings (at least monthly)

PHASE 3 - TESTING AND COMMISSIONING, TRAINING AND POST ACCEPTANCE

The BHS Engineer shall

- Review the testing and commissioning strategy (all documents and provide advice)
- Assess of compliance (technical, functional, contractual for technical issues)
- Assist the Employer to the PLC emulation during Factory Acceptance Testing.
- Assess successful completion of works and testing to and make all recommendations for the issuance of Taking Over Certificate (compliance with contract and best practices). The BHS engineer shall highlight risks for transfer to operations, and assist during ORAT.

After commissioning and ORAT, the BHS engineer shall

- provide assistance during by 3 months of during the defect liability period, after commissioning, during which defect and issues shall be identified and managed
- support training of the staff.

2 TENDER - MINIMUM REQUIREMENTS

STAFF DEPLOYMENT

The BHS consultant shall propose a suitable team to assist and deploy on site during installation and testing and be available remotely by video calls when not on site. Testing and commissioning to be done on site.

PLC emulation testing to be done off site during Factory Acceptance Test.

Stage	Description	Man x days	Travels to Sofia (1 travel is for 1 person)
1	Tender preparation	30	2
2	Assistance during tendering and Contract Award	10	2
3	Design and planning, delivery, construction, installation on site (at least monthly during construction), review of BHS simulation, GSE simulation	30 40	2 (design) 12 (Installation)
4	Testing and commissioning (including PLC emulation testing during Factory acceptance testing)	70	16
5	Training and Post acceptance	30	6
Total	Minimum staff deployment	**180**	**40**

Payments shall be paid by stages. Last payments justified with invoices based on actual overall staff deployment, certified by an external auditor. Interim payments may be issued every 3 months

3 TENDER - MINIMUM REQUIREMENTS

COMMERCIAL OFFER TO INCLUDE

- Company registration
- Company revenues over the past 5 years
- List of COMPANY references for BHS projects over past 10 years (including role)
- List of BHS projects over past 5 years by lead BHS Engineer ASSIGNED to the project
- Letters of testimony of Client satisfaction for BHS engineering services (design, installation, commissioning, consultancy)

Contract will be subject to standard declaration of compliance with national tax law

KEY EXPERIENCE

- List of BHS projects (designs, planning, installation, commissionning) at international airports of more than 7 Mpax over the past 10 years (minimum 3)
- List of completed BHS engineering planning, design, installations, testing, and commissioning with more than 7 Mpax over the past 5 years (3 minimum in international context, and preferably at least one in eastern europe)

PROJECT STAFFING

CV of key personnel ASSIGNED to the project

Project Milestones

1. Feasibility/outline design complete
2. Planning complete
3. Detailed design complete
4. Procurement complete
5. Construction commence
6. Construction complete
7. Project handover

TENDER BUDGET

Estimated Budget: circa 180 man x day.
Offer to be inclusive of all travel and sundry cost