[Redacted]
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Department for International Development
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EAST KILBRIDE
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Telephone: East Kilbride 01355 84 4000
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Your Ref: PO 5743

Date: 11th July 2016

Contract Amendment No: 4

CONTRACT FOR: St Helena Project Management Unit

CONTRACT NUMBER: PO 5743

With reference to the contractual letter dated 28th November 2011 (as most recently amended by the letter dated 14th October 2015) whereby your firm was engaged to carry out the terms of reference as detailed in Section 3 and with reference to your discussion, I confirm that the UK Government wishes to make the following further amendment to the letter of 28th November 2011:

Section 1- Form of Contract

3. Commencement and Duration of the Services

Delete 31st May 2016 ("the end date") and replace with 31st May 2017 ("the end date")

4. Financial Limit

Delete: £4,276,009 ("the financial limit") and replace with £5,057,095.88 ("the financial limit").

Section 3 - Terms of Reference

Insert paragraph 8.5: "The Supplier shall commence Services in November 2011 and shall complete them by 31st May 2017. DFID may extend the contract should an ongoing need for the services exist."

Insert paragraph 8.6: "The responsibilities of the Environmental Monitor and CDMC (paragraphs 4.4 & 4.5) will cease when the respective people leave the Island in August 2016 and December 2016 respectively."

Insert Addendum 3 to Appendix A of Section 3 (June 2016) enclosed.
The Contract Terms of Reference, Annex A, Appendix A and all previous addendums have been included for clarity.

Section 4 – Special Conditions

Delete in toto and replace with Section 4, Special Conditions (Revised June 2016) enclosed.

Section 5- Schedule of Prices

Delete in toto and replace with Section 5 Schedule of Prices (Revised June 2016) enclosed.

2. This amendment relates to a 12 month extension to allow completion of the remaining construction work and to undertake a wind modelling assessment of the St Helena Island to assess the impact of wind shear has on the approach to St Helena Airport detailed in section 3.

[redacted]

3. Please confirm in writing by signing and returning one copy of this letter, within **15 working days** of the date of signature on behalf of DFID that you accept the amendment set out herein.

4. Please note the provision in the contractual letter that the financial limit of the UK Government's liability to the Supplier under this engagement shall not exceed the sum specified unless the amount of any such excess has been agreed by the Department for International Development in writing before the Supplier takes any action which might result in the financial limit being exceeded.

For and on behalf of the Secretary of State for International Development	Name: [Redacted] Position: Procurement & Commercial Manager Signature: Date:
For and on behalf of **Halcrow Group Limited**	Name: Signature: Date:

CB11 (March 2014)

[redacted]

Section 3
Terms of Reference

St Helena Access

Terms of Reference for the Project Management Unit

Draft: **Authors: DFID, SHG** **Date: February 2011**

1. Background

1.1 The island of St Helena, an Overseas Territory of the United Kingdom (UK) is of volcanic origin and covers 47 square miles in the South Atlantic Ocean. St Helena is over 4,000 miles from the UK, 700 miles southeast of Ascension Island, and 1,700 miles from Capetown, South Africa. The Island's total population is around 4,000 persons, of whom 1,300 live in the capital, Jamestown.

1.2 St Helena has no airfield and the only regular mode of access to the Island is via the Royal Mail Ship (RMS) St Helena. The RMS St Helena provides regular sea access to the island from the UK, South Africa and Ascension Island.

Airport

1.3 In March 2005, following a comprehensive feasibility study carried out by Atkins, DFID Ministers approved development of air access to St Helena based on the construction of an airport capable of supporting flights by a Boeing 737-800 or similar aircraft to a recognised international hub, expected to be Cape Town or Johannesburg, and the introduction of scheduled flights.

1.4 Tenders were sought in May 2007. From a shortlist of four pre-qualified consortia, tenders were received from Basil Read (Pty) Ltd and Impregilo S.p.A. Following a period of competitive negotiations, the St Helena Government (SHG) and DFID entered into final negotiations with the preferred bidder, Impregilo S.p.A. in October 2008.

1.5 In December 2008, in light of a significantly changed economic climate and a threefold increase in the estimated cost of the project from the 2005 feasibility estimate, DFID Ministers imposed a pause in the negotiations.

1.6 A study was subsequently carried out by Atkins to examine the potential for reducing capital costs through the adoption of an Engineered Material Arrestor System (EMAS) at one end of the runway, and through re-assessing the required Landing Distance Available (LDA) and Take-Off Runway Available (TORA) in light of recent developments in medium sized aircraft.

1.7 On 22 July 2010, the Secretary of State for International Development confirmed the intention to proceed with the St Helena airport, subject to a number of conditions. These conditions include approval of the use of EMAS by the regulator (Condition 1), negotiation of significant reductions in the construction cost to reflect savings arising from the use of EMAS and modified runway length (Condition 2), changes to the allocation of risk between DFID/SHG and the contractor, particularly in the area of inflation over the construction period (Condition 3) and a requirement for the St Helena Government undertake to implement the

reforms needed to open the island's economy to inward investment and increased tourism (Condition 4).

1.8 In October 2010 DFID issued a press notice announcing its intention in the first instance to resume negotiations with Impregilo S.p.A. and Basil Read (Pty) Ltd or, if this fails to deliver an acceptable DBO contract for the airport, to issue a new tender notice.

1.9 Separate tenders will be issued for a Fuel Management Contractor, to manage new fuel facilities in Rupert's Valley and at that airport site, and for an Air Service Provider to establish scheduled flights to the island.

1.10 Sound management structures and clear working practices are essential to successful implementation of the access project, and to parallel socio-economic development on St Helena to maximise the benefits that air access offers. Dedicated teams have been put in place to ensure timely and efficient delivery of the project. Each will work to terms of reference with clearly defined roles and responsibilities, summarised briefly below:-

a) DFID OTD Access Project Team – Based in London, and responsible to DFID senior management for the use of DFID funds; planning, guiding, providing overall management, administering the main inputs to the project, and monitoring project outputs. DFID is also represented on St Helena by a resident manager who liaises with the OTD Access Project Team, but who does not have direct management responsibility for the project.

b) St Helena Access Project Team - The functional link between the access project, the St Helena Government (SHG) Departments and other key stakeholders, facilitating actions required to ensure that the project and socio-economic development are taken forward.

c) Project Management Unit - On the ground management of the access component of the project, reporting to the DFID OTD Access Project Team, and working with St Helena Access Project Team to ensure timely completion of the project and links with wider development.

1.11 Annex A to these terms of reference sets out the management responsibilities of these teams in relation to the St Helena Access project, and to executive decision makers in St Helena and DFID.

1.12 These terms of reference set out the requirements for a suitably qualified supplier to undertake the role of the Project Management Unit

2. Objective

2.1 The objective of the consultancy is effective management and construction supervision of the DBO contract, and co-ordination and negotiation with the preferred air service provider and bulk fuel supplier, leading to certification of the airport and the commencement of air services to St Helena.

3. Recipient

3.1 The recipient of the services is the St Helena Government.

4. Scope of Work

[redacted]

4.1 During the detailed design and construction phase, the PMU will provide day-to-day management of the delivery of the airport, air services and fuel management contractor, identifying the need for and facilitating inputs from the DFID Access Project Team and St Helena Access Project Team to ensure effective, efficient and timely completion of the project.

4.2 The PMU will be responsible for preparing, regularly updating and monitoring progress against a workplan covering all activities required for the establishment of air services, including, but not limited to:-

- facilitation of the necessary planning approvals
- construction of the airport
- construction of supporting infrastructure (wharf, haul road, permanent access road, bulk fuel facilities, water supplies etc.)
- support to the air services provider (arrangements for test flights etc.)
- establishment of air traffic control capability
- establishment of security arrangements that comply with UK regulatory requirements for the Overseas Territories for certification of the airport
- establishment of rescue and fire fighting services
- development of an aerodrome manual that complies with the requirements of the regulator
- certification and licensing of the airport by the appropriate authorities (Air Safety Support International and the Governor of St Helena)
- advice on any necessary or desirable amendment of planning regulations to safeguard future operations of the airport
- establishment of appropriate monitoring arrangements for operation of the airport and air services, including aviation fuel supply (in consultation with the St Helena Bulk Fuel Agency, when established).

4.3 The PMU will assume all responsibilities of the Engineer as defined under the FIDIC Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Design by the Contractor – 1999 as amended by the particular conditions. Particular conditions of contract for Phase 1 (Design and Build) and Phase 2 (Operations) are provided as Annex B. The responsibilities of the Engineer will be delegated to the head of the PMU by the St Helena Government.

4.4 The PMU will also be responsible for monitoring and ensuring compliance with the Environmental Management Plan (EMP) (attached as Annex C to these terms of reference). The PMU team will therefore include a long-term, St Helena-based Environmental Monitor, reporting directly to the PMU Project Manager. Responsibilities for environmental management include:

- Reviewing and approving the Contractor's Environmental Management Plan (CEMP) against the requirements of the EMP, providing guidance as necessary;
- Monitoring and auditing compliance of the Contractor with the CEMP;
- Reviewing and approval of any modifications to the CEMP in consultation with SHG Environmental Co-ordinator;
- Reviewing and approval of Contractor's weekly and monthly environmental audits and monitoring reports;
- Key liaison with Contractor's CEMP Co-ordinator;

- Key liaison with SHG's Environmental Co-ordinator;
- Liaison, through SHG's Environmental Co-ordinator with the competent local regulatory authorities, NGOs, and the community;
- Providing opportunities for short-term on-site shadowing by SHG environmental staff in the interest of local professional capacity building;
- Checking and approval of as-built environmental aspects of the works.

4.5 The PMU will also assume the responsibilities of the CDM Co-ordinator under the Construction (Design and Management) Regulations 2007 (CDM). For the purpose of implementing the CDM Regulations, the Employer is the "Client", and the PMU Manager is responsible for appointing the CDM Co-ordinator from within the PMU staff.

4.6 The PMU will be responsible for co-ordinating certification of the airport with the establishment of air services on St Helena.

4.7 The PMU will also be responsible for co-ordination of airport and air service activities with a separate management contract for the bulk fuel facilities.

4.8 The PMU will develop a workplan in consultation with the DBO Contractor, the Fuel Management Contractor (when appointed) and the Air Service Provider (when appointed) and all relevant stakeholders, clearly identifying a critical path, roles and responsibilities for delivering each activity and potential constraints. The workplan will include budget projections, milestones, benchmarks, indicators of performance and details of how these will be measured.

4.9 The PMU will develop and maintain a risk register and an issue register.

4.10 The PMU will liase with the St Helena Access Project Team, attending weekly meetings, to ensure that inputs required from St Helena Government departments are delivered in line with the overall workplan.

4.11 The PMU Manager will also work with the St Helena Access Project Team to monitor the delivery of the required inputs and to discuss measures to address constraints.

4.12 The PMU will report to the DFID OTD Access Project Manager on any slippage in enabling activities by St Helena Government departments and work with the St Helena Access Project Team to develop measures to address constraints.

4.13 The PMU will measure and monitor the Contractor's performance, including performance against the CEMP, confirm achievement of milestones and certify payments due.

4.14 The PMU will negotiate and prepare variation orders as necessary to ensure efficient delivery of the airport and air services, and submit to the St Helena Government for approval, having sought prior agreement from DFID OTD.

4.15 The PMU will monitor all project finances.

4.16 The PMU will prepare monthly progress reports against the agreed project workplan, risk register and issue register, for submission to DFID OTD Access Project Team Manager and copied to the St Helena Access Project Team. The monthly report will include a

summary of progress against key milestones, reporting against the EMP, and a summary of project finances.

4.17 The PMU will support the St Helena Access Project Team in managing communications, preparing press releases, and dealing with enquiries and incidents

4.18 Working closely with the DFID OTD Access Project Team and the St Helena Access Project Team, the PMU will facilitate project reviews and audits as required by DFID's project management procedures.

5. Deliverables

5.1 The PMU will be responsible for delivery of the following:-

- Brief weekly report
- Monthly reports
- Special reports
- Project completion report
- Terms of reference for any additional technical assistance
- Briefing for monitoring reviews

Weekly Reports

5.2 During construction the Engineer shall submit a brief weekly report to the Employer summarising the following:

progress of the Contractor's Site works
key issues arising, including risks
issues requiring action by the Employer, including risks
activities planned for the forthcoming week and meetings.

5.3 The report shall be e-mailed or faxed by 12.00 noon local time on the Monday following the previous reporting week.

Monthly Reports

5.4 During the design and construction phase the Engineer shall prepare a Monthly Activity Report summarising the Engineer's and Contractor's activities during the period. Monthly reports shall include:

Brief description of the Work carried out during the reporting period;
Report on progress against the project logical framework and the agreed workplan, clearly showing activities completed during the reporting period;
Actual or expected difficulties or delays in the implementation of the contracts and their effect on the implementation timetable, and the actual steps taken or planned to overcome the difficulties and avoid delays;
Report against the implementation of the Contractor's EMP.
Expected changes in the completion date accompanied by an updated project workplan;
Key personnel changes in the Contractor's staff;
Project cost control table showing the original cost estimates, the original contract prices, the current contract price including variation orders and contractual changes, the future

[redacted]

cost estimate at contract completion and the corresponding sources of financing; this table shall be complemented by comments on matters that may affect the project costs;

Monthly update of the project risk register, identifying any unresolved risks, the party responsible for action and date by which resolution is required;

Monthly update of the project issue register, identifying any unresolved issues, the party responsible for action and date by which resolution is required;

Brief description of the work to be carried out during the forthcoming period;

Illustrative pictures, charts, maps and diagrams;

The Contractor's Monthly Report shall be appended to the PMU report;

An overview of time spent by the Engineer, with clear breakdown of man-days for all of the Engineer's staff during the period.

Monthly reports shall be sent in print and in electronic format.

Special Reports

5.5 Special Reports shall be prepared on any major issue raised by the contract implementation, including any claims by the Contractor, at the Employer's request.

Project completion report

5.6 Following issue of the completion certificate(s), the PMU will prepare a summary report of the Design and Build Phase. The report will set out any remaining defects, with agreed actions and timeframes for completion; a summary of project finances; and analysis of any outstanding claims. The report should also include as an annex a formal DFID Project Completion Report against the project logframe. A template for this will be provided.

Terms of reference for any additional technical assistance

5.7 The PMU will prepare terms of reference for any additional technical assistance that may be required by the Employer.

Briefing for monitoring reviews

5.8 The PMU will prepare briefing for annual monitoring reviews of the project to be carried out in accordance with DFID monitoring procedures.

5.9 The PMU Manager will copy all reports and correspondence to the DFID OTD Access Project Team Manager and the St Helena Access Project Team, and shall ensure that all reports and correspondence generated by the Contractor or other third parties are also copied to these parties.

[redacted]

6. Composition

6.1 The PMU will be appointed by DFID in consultation with the St Helena Government, and will be headed by a full-time PMU Project Manager throughout the consultancy. The PMU Project Manager will report directly to the DFID OTD Access Project Team Manager, and will work closely with the St Helena Access Project Team Manager to facilitate effective and timely delivery of the project outputs.

6.2 The PMU Project Manager will be supported by an appropriately staffed team (with construction supervision, environmental monitoring and financial monitoring skills), who will monitor progress on the construction of the airport, and prepare accounts for certification.

6.3 It is expected that the staffing of the PMU, when fully established in St Helena, will include:-

- The PMU Project Manager
- Construction supervision staff (Engineers, Inspectors as required. One staff member will be allocated formal CDM Co-ordinator responsibilities)
- Environmental Monitor
- Finance Officer
- Administrative Support (as required)

6.4 The PMU will be recruited from a reputable engineering consultancy firm. Wherever possible, the supplier should maximise the use of local resources.

6.5 The PMU must have access to specialist technical inputs from the supplier's Head Office to facilitate design approvals, claims analysis etc., where these cannot be carried out on site.

6.6 The PMU may engage specialist technical support from independent consultants as necessary, with prior agreement from DFID and the St Helena Government, and engaged directly within agreed limits. (For example, the PMU may consider it advantageous to hire its Environmental Monitor from independent consultants having previous experience of environmental assessment of this project.)

7 Required Qualifications and Experience

7.1 The PMU Manager will have prior site experience in successful management of construction projects of comparable complexity, preferably with recent airports experience. He/she will have achieved chartered status through an appropriate professional body, will ideally have proven experience in the management of design and build construction projects, preferably using the FIDIC Conditions of Contract for Plant and Design-Build. He/she must have experience in the implementation of risk management, quality control, and health and safety systems. Proven skills in managing a multidisciplinary team will be necessary. Experience in negotiation of design and build contracts would be an advantage.

7.2 All construction supervision staff engaged for Phase 2 (detailed design and construction) should hold appropriate professional qualifications. The construction supervision staff should include a CDM Co-ordinator, who should have received the appropriate training.

[redacted]

7.3 The Environmental Monitor should have appropriate environmental qualifications and professional affiliations, and previous experience in the supervision of environmental management of substantial civil works projects.

7.4 The consultancy organisation's Head Office support team, which should be available throughout both phases of the consultancy, should include the following skill-sets:-

- Tender Evaluation
- Design review
- Risk analysis
- Risk management
- Commercial negotiations
- Aviation regulation
- Contract law
- Airport and air service regulation
- Environmental management

7.5 Consultants engaged in these roles should hold appropriate qualifications and professional affiliations.

8. Location and Timing

8.1 The timing of appointment of the PMU and its mobilisation to St Helena will be dictated by the agreed contractor's implementation plan.

8.2 As a guideline, it is expected that a contract will be put in place with the agreed contractor by the end of October 2011. Based on this timeline it is expected that the mobilisation of the PMU will be in November 2011 and will be for a duration of four years.

8.3 Prior to mobilisation to St Helena, the PMU will be based in the UK. During the design phase the PMU Project Manager may be required to travel to the country of origin of the contractor to carry out reviews and attend meetings.

8.4 The full PMU will be established in St Helena not later than one month prior to the commencement of construction.

9. Communication and Co-ordination

9.1 The PMU acts as the supervisory body for construction of the airport, agreement of air services, and for ensuring that policy issues affecting project implementation are brought to the attention of the St. Helena Access Project Team and the DFID Manager, monitoring and reporting on progress towards addressing them.

9.2 Primary responsibility for communications on St Helena rests with the St Helena Access Project Team. The PMU will support the St Helena Access Project Team by preparing regular updates and work closely with the St Helena Access Project Team Manager to ensure effective communications.

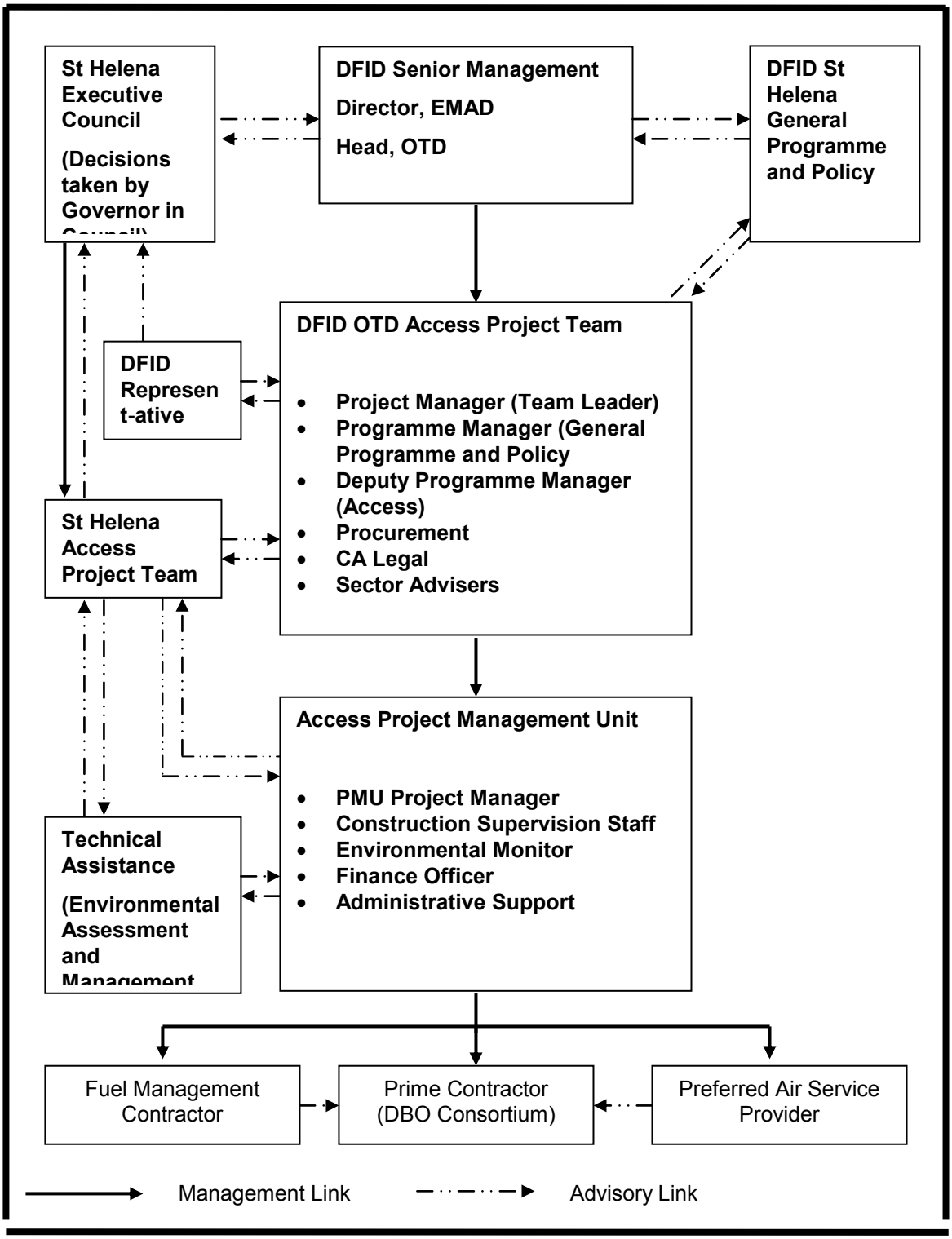
9.3 The PMU will establish effective and regular communications with the St Helena Access Project Team, the DFID OTD Access Project Team, and DFID Manager in St. Helena.

[redacted]

9.4 The PMU will keep the St Helena Access Project Team, the DFID OTD Access Project Team, and DFID Manager in St. Helena informed on project progress, and will provide support to public awareness raising, press releases and responses to enquiries.

Annex A - Organisational Charts

Access Project - Detailed Design and Construction Phase



[redacted]

PO 5743 Section 3 Appendix A (May 2014)

St Helena Airport: Project Management Unit

Additional scope of work to provide:

- Support to the St Helena Government on aerodrome safeguarding.
- Contract negotiations and construction supervision for Rupert's Bay Wharf
- Rockfall Hazard Assessment within Ruperts Valley
- Contract negotiations for Ground Based Augmentation System (GBAS)
- Additional studies
- Supervision of airfield concrete pavement construction

Advice to the St Helena Government on Aerodrome Safeguarding

Scope of Work

The supplier will:-

- Establish current situation in regard to existing obstacle infringements for the St Helena airport.
- Meet with relevant stakeholders to discuss proposals on future development, and long term safeguarding. (This will include, but not be limited to Air Safety Support International (ASSI), St Helena Government, Department for International Development and Atkins)
- Provide advice to SHG, through DFID, on the purpose, structure and legislative requirements of an airport safeguarding policy
- Compile a safeguarding map for use by SHG in identifying applications for development that might affect airport operations
- Assist the Attorney General in drafting legislation to enact a safeguarding policy.

Outputs

- Technical note setting out advice to SHG on likely acceptability of the proposals and safeguarding measures.
- Drawing indicating locations and OLS penetrations of the proposed installations relative to the aerodrome.
- Technical Note setting out the basis for future aerodrome safeguarding and the work that needs to be undertaken to enshrine this in legislation, policies and procedure.
- A safeguarding map that can be referenced in the legislation and will provide the basis for decisions by the Land Development Control Board.
- Draft safeguarding amendments/additions to the St Helena Land Planning and Development Control Ordinance.

Rupert's Bay Wharf

Scope of Work

The supplier will:-

- Review the outline design report from Basil Read (Pty) Ltd for the establishment of a permanent wharf in Rupert's Bay and make recommendations for any design changes.

- Review and comment on preliminary designs and bills of quantities for the wharf to assess technical feasibility, compliance with the specifications and value for money, making recommendations to achieve the best facility possible within the available funding envelope.

- Lead negotiations with Basil Read (Pty) Ltd on contractual terms and conditions (including risk allocation, insurance, bonding and liquidated damages) for construction of the wharf as an additional section of the works.

- Prepare and agree with Basil Read (Pty) Ltd, DFID and the St Helena Government a Supplementary Agreement to cover the design and construction of the wharf.

- Undertake construction supervision for the wharf (responsibilities to be as for the rest of the works).

Outputs

- Supplementary Agreement to the main airport Design Build and Operate (DBO) Contract to cover the design and construction of the permanent wharf in Rupert's Bay.

- Weekly and monthly progress reports (to be integrated with the main Airport DBO weekly and monthly reports).

- Completion report (to be integrated with the main airport DBO report).

***Rockfall* Hazard Assessment within Ruperts Valley**

Scope of Work

The supplier will:-

- Review of previous studies

- Provide a detailed assessment of slopes immediately above the location of the proposed new wharf in Rupert's Bay and the adjoining access road to Rupert's Lines.

- Review of proposed operations at Rupert's Bay wharf to determine level of exposure to rockfall during normal operation of the wharf and access road.

- Identify cost effective (both capital investment and operation and maintenance) mitigation measures to ensure an acceptable level of risk for wharf operations.

- Prepare capital and maintenance cost estimates for all options.

- Define environmental impacts of any proposed measures.

Outputs

- A time-bound work-plan within two weeks of appointment that is approved by St Helena Airport Director and DFID Project Manager

- A single report, including relevant drawings, covering all requirements of the scope of work.

Ground Based Augmentation System (GBAS) Procurement

[redacted]

Scope of Work

The supplier will:-

- Lead negotiations with Honeywell Inc. on contractual terms and conditions for provision of a Ground Based Augmentation System (GBAS) for the St Helena Airport.

- Prepare and agree with Honeywell Inc., DFID and the St Helena Government a contract for the supply and installation of the GBAS.

- Undertake construction supervision for the installation of the GBAS (responsibilities to be as for the rest of the works).

Outputs

- Contract with Honeywell Inc. for the supply and installation, training and maintenance of a GBAS for the St Helena Airport.

- Weekly and monthly progress reports (to be integrated with the main Airport DBO weekly and monthly reports).

GBAS Civil Requirements

Following the completion of the GBAS procurement, the PMU shall:

- Liaise with Honeywell to determine exact civil requirements for installation of GBAS

- Prepare performance specifications and outline civil drawings to enable Basil Read to price for the design and construction of the civil requirements

- Prepare Variation Order for Basil Read to undertake the required works

Outputs

- Responsibility matrix detailing the responsibility of each party (Honeywell, Basil Read and SHG) with regard to the GBAS installation

- Variation Order or Supplemental Agreement to the main airport Design Build and Operate (DBO) Contract to design and construct the civil requirements to enable Honeywell to install the GBAS.

Supervision of airfield concrete pavement construction

The PMU shall provide supervision of airfield concrete pavement construction. Initial inspections highlighted a number of issues with the quality of the concrete pavements. Given the critical nature of the concrete pavement, successful resolution of the quality issues is essential.

Whilst on St Helena, the PMU airfield pavement specialist will:

- Supervise construction of the concrete pavement
- Inspect quality of final concrete pavement
- Review adequacy of test results
- Work with Basil Read to resolve any quality issues
- Train existing PMU staff on key issues associated with concrete pavement construction

Outputs

- Sign off the concrete pavement meets the required specification for an airport.

Additional Studies

Scope of Work

The supplier will:-

- Undertake additional specialist studies arising from the airport works including:
    - Provision of archaeological call down support
    - Assessment of concrete durability for the Bulk Fuel Installation

Outputs

- Advice to the St Helena Government and DFID.
- Variation Orders and Site Instructions to Basil Read (Pty) Ltd as required.

[redacted]

PO 5743 Section 3 Addendum 1 to Appendix A (March 2015)

St Helena Airport: Project Management Unit

Additional scope of work to provide:

The supplier will provide a suitably qualified airport specialist to support the DFID Project Team based in 22 Whitehall to undertake the following tasks:-

- Review airport documentation prepared by the Contractor and assist in ensuring that these are completed to a high standard in line with the programme for certification.
- Maintain the project programme using Microsoft Project, monitor weekly and assess mitigating actions to address slippage.
- Maintain the Project Issues Register, highlighting outstanding issues to the Project Team.
- Carry out regular reviews of the Project Risk Register, recording mitigation and the impact of this on probability and impact, ensuring new risks are recorded, risks which no longer apply are closed, and providing guidance to the Programme Board on risks that require their input.
- Provide general aviation advice as required by the DFID Project Team.
- Contribute to project reporting.

Additional outputs

Comments on and text for aerodrome manuals.

Regularly updated MS Project Programme

Regularly updated Issue Register

Regularly updated Risk Register

[redacted]

PO 5743 Addendum 2 to Section 3 Appendix A (October 2015)

Additional Works

Disaster Management

- Produce an Operational document (part 5) for the National Disaster Management Plan (NDMP)
- Produce a "To do list" covering all the relevant milestones and actions required to populate the complete NDMP framework.
- Review the TOR for the Disaster Exec post.

Fuel Management Contractor Review:

- review Greystar's tender to ensure that the specifications in the tender documentation and the requirements of OTAR 139 are being met
- review F+Gs tender evaluation report and its recommendation(s)
- review the contract to see if it could be tightened up anywhere

Fire Station Review:

Review SHG' current designs from relevant personnel at CH2M on the following specific points:

- The overall design of the fire station and a view on whether the drawings incorporate all essential elements one would expect to find in an operational fire station with a remit to provide support to airport related firefighting.
- Whether the flow of personnel through the building is sensible or if there are some areas that could be improved to minimise response times etc.
- Whether there are any items included in the design that would not be recommended.
- Review specification for specialist equipment.
- Any general advice on best practice regarding fire station construction would be helpful.

Argos Tracking:

- Undertaken vehicle tracking at Argos Coldstore to demonstrate 40ft container movements

Project Manager's Visit:

- Visit to St Helena by [Redacted], Aviation Project Manager

Scope of Work ([Redacted] **role)**

Assume primary responsibility for monitoring and supporting work streams relating to:-

- Operational Readiness and Airport Certification
- Phase 2 contract negotiations
- Air Traffic Control
- Search and Rescue
- Air Service Preparations
- Ground Based Augmentation System (GBAS)
- Sea Rescue

Contribute to risk and issue management.

Manage and provide technical advice in all areas listed above.

Provide regular reporting to Project Manager

Work collaboratively and flexibly with the DFID Project Team.

[redacted]

Key tasks

The work will include but may not be limited to:-

Certification/Operational Readiness. Liaise with Basil Read on Certification progress, which will involve the following:-

- Fortnightly teleconference with Basil Read
- Confirm and review plans for calibration flight
- Review and provide feedback on certification programme
- Tracking progress and raising issues
- Review airport documents as required
- Review AIP and identity any additional information required
- Liaison/meetings with ASSI as required

Search and Rescue. Maintain overview of work currently being supported by Search and Rescue specialist, [Redacted].

- Liaise with [Redacted] on progress and raise any concerns with DFID.
- Liaise with SHG to define protocols for search and rescue then send protocols to ICAO
- Monitoring progress with establishment of Search and Rescue Sub-Centre (RSC) Provide technical support to St Helena Government (as required)
- Liaison with ICAO
- Provide support to meeting in Angola (October)
- Monitor progress of sea rescue provision

Air Traffic Control

- Progressing Air Traffic Control agreement
- Liaison with UK Met Office
- Liaison with ICAO/Angola
- Provide technical support to St Helena Government (as required)
- Provide support to meeting in Angola (October)

Phase 2 negotiations;

- Liaison with EY (who are leading the negotiations)
- Provide specialist technical support to negotiation team
- Monitor programme
- Review financial implications of proposals
- Prepare submission

GBAS

- Approval of Hughes Aviation as an Instrument Flight Procedure designer.
- Monitor progress and review output of ASAP IFP designs.
- Support Access Office in arranging for calibration flights.

Air Service preparations

- Respond to any queries from Comair.

Outputs

4.1 The supplier will deliver the following outputs:-

- Documents/papers as required to deliver the support set out above.
- Brief monthly reports setting out progress towards airport certification, highlighting risks and issues and proposing steps for remedial action where required.
- Exception reports as required setting out issues and proposed actions.

[Redacted] **Role:**

Provision of ad-hoc specialist advice on airport operational readiness and certification issues

[Redacted] **Role**

Provision of a specialist resource to monitor the design and construction of the Bulk Fuel Installation (BFI) and Airport Fuel Facility (AFF). The resource shall be based on St Helena and shall report to the PMU manager.

Any other task agreed with DFID Project Manager, but not listed in this section.

[redacted]

PO 5743 Addendum 3 to Section 3 Appendix A (June 2016)

Terms of Reference: Wind Modelling Study

1. Background

The island of St Helena, an Overseas Territory of the United Kingdom (UK) is of volcanic origin and covers 47 square miles in the South Atlantic Ocean. St Helena is over 4,000 miles from the UK, 700 miles southeast of Ascension Island, and 1,700 miles from South Africa.

The topography of the island and the position of the aerodrome is such that there are significant physical obstacles which restrict the Runway 20 approach from the north (The Barn and King and Queen Rocks) and to the Runway 02 from the south (Great Stone Top).

As part of the Certification process and Operational Readiness for the aerodrome a number for test flights are being flown into the aerodrome. The two most recent flights included the Execujet ASSI transportation flight which operated from 10 to 15 April 16 and Comair implementation flight from 18 to 20 April 16. In some attempted landings the aircraft could not land on Runway 20 therefore an approach was taken from Runway 02. However this approach is not viable for the currently contracted B737-800 aircraft due the aircraft payload restrictions and predominant 15 knot tail winds in the Northern direction.

The operators of both of these flights reported extreme wind shear and turbulence whilst attempting a landing using Runway 20 over the sea and above Prosperous Bay. Unfortunately, instruments located on the runway are not able to pick this up and there are no models that could have accurately or meaningfully predicted these conditions and their impact on approaching aircraft.

Another contributing factor is the current decision height which is defined as the height above the runway at which the pilot must have visual contact before attempting a landing is 967 ft. As a result of this height the Met Office estimates that aircraft will not be permitted to take off from their point of origin for St Helena on an average of one in six days. This probability is the driving factor to further understand the wind conditions which are present upon the Runway 20 and 02 approaches.

This terms of reference sets out the requirement to undertake a wind modelling assessment of the St Helena Island to assess the impact of wind shear has on the approach to St Helena Airport.

2. Purpose

To undertake a wind modelling study for the St Helena Airport Project to demonstrate the wind patterns which are occurring on the Island. Assess and compare the wind conditions which are causing wind shear and turbulence to occur by comparing and calibrating the model to live data from real operator experience in order to best represent real life conditions based on the information available.

To improve the quality of the weather forecast to allow the airline/pilots to make an informative decision before departing from origin.

3. Reference

The following documents should be referred to as part of this analysis.

- Wind Shear Analysis: St Helena Airport, December 2014, Met Office
- St. Helena Airport Data Quality Control and Analyses – PhysE Physical Environment, May 2013
- St Helena Airport Meteorological Services Request for Proposal: Met Office response – UK Met Office, November 2013
- Wind Shear Analysis: St Helena Airport – UK Met Office, January 2015

[redacted]

4. Input

In order for the review to be undertaken the following is required;

- 3D terrain model of the Island and the St Helena airport topography (preferred format AutoCAD or Revit).
- Wind rose for the Airport and historical wind data to be provided by the Met Office and analysis of back data to October 2015 (when the main meteorological equipment was installed) to see if there are any trends.
- Feedback from MET Office on the modelling approach and guidance on identifying potential causes of wind shear
- Detailed recording of air speeds near where the problems have been observed
- Operator feedback on the conditions currently being experienced (description of any incidents, info on requirements for aircraft manoeuvres etc.)

The following tasks will be undertaken as part of this study;

- Undertake a 3D Computational Fluid Dynamics (CFD) analysis of the local wind conditions for the island and analyse the wind threshold at which wind shear and turbulence is likely to occur and may become unacceptable.
- Compare the empirical evidence from approaches and landings, and correlate this with the prevailing weather conditions at the time.
- Liaise with UK MET Office forecaster now resident on St Helena to capture indication of the likely wind conditions to be experienced on the island and upon approach.
- Provide feedback regarding wind conditions to the operators in order to refine the analysis and suggest further or more relevant measurement data. This advice will relate to wind conditions only and will require further analysis from aeronautical experts in order to assess impact on flight procedures.

5. Computational Fluid Dynamics (CDF) Methodology

The CFD software used for this will be ANSYS-CFX which is a high-performance, general-purpose fluid dynamics program which has wide provenance in simulations of this type. The incoming atmospheric boundary layer will be assumed to be a neutral, stable planar 2-D flow in which streamwise gradients are negligible. The Shear Stress Transport (SST) model will be used to model turbulence together with wall-functions at solid surfaces. A characteristic roughness heights will be used for the open sea and the surrounding island terrain.

It is expected that a number of wind directions will require to be modelled, based on the wind rose and information regarding aircraft approaches. A minimum of 8 No. calculations is expected to be required to assess a range of conditions.

6. Deliverables

A report will be prepared to capture the following:

a. Results from CFD modelling, highlighting the wind conditions for which relatively high wind-shear and turbulence are likely to occur along with where the highest levels of shear and/or turbulence occur.

b. Collate feedback from every approach and landing made on Runways 20 and 02 and undertake analysis against the prevailing weather conditions at each time to determine whether there are

[redacted]

patterns that will allow the Met forecaster to reliably predict when conditions are likely to prevent landings.

Travel – we do not envisage travel will be involved

7. Timeframe

This extension will be for an additional 12-month period (1st June 2016 to 31st May 2017). DFID may extend the contract should an ongoing need for the services exist.