ENVIRONMENTAL STATEMENT
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A16.1 MANAGEMENT OF INDICATIVE WASTES ARISING FROM CONSTRUCTION AND OPERATION

16.1 INDICATIVE LIST OF WASTES DURING CONSTRUCTION

The following provides an indicative list of materials which could arise during the construction of the proposed access project:

This list is not exhaustive or complete and the Waste Management Plan (WMP) will contain a more detailed list of the various waste streams and potential quantities based on the information provided in the Contractor's tender documents, the proposed design and site specific knowledge.

- Unsuitable fill material arising from all areas (most likely to be inert);
- Surplus or unsuitable set concrete;
- Existing waste materials present on the Prosperous Bay Plain site.
- During site visits areas where dumping has taken place were observed, one site in particular being a depression close to the alignment of the proposed runway. Materials in this area include drums, asbestos sheets and tyres. There are also areas of fly tipped material close to and on the route of the access road in the vicinity of Bottom Woods.
- Domestic waste arising from workforce and families
- Surplus materials delivered to the island, for example sand and cement
- Hazardous waste as listed on the Hazardous Waste List 94/904/EC, including:
  - Chemicals
  - Fuel and oils
  - Clinical waste from first aid
  - Lead-acid batteries
  - Electrical equipment containing hazardous components
  - Solvent-based inks and paints
  - Waste oils
  - Pesticides
  - Herbicides
  - Acids
  - Treated timber
  - Concrete washings and bentonite
  - Containers and other materials which have been in contact with hazardous waste materials
- Packaging from all sources – equipment and materials
- Cleared vegetation
- Off cuts of construction materials such as timber, steel, pipes and cables
- Tyres and other mechanical components from all types of vehicles including large earth moving equipment.

16.2 INDICATIVE LIST OF WASTES DURING OPERATION

The following provides an indicative list of materials which could arise during the operation of the proposed access project:

This list is not exhaustive or complete and the WMP will contain a more detailed list of the various waste streams and potential quantities based on the information provided in the Contractor's documents, the proposed design and site specific knowledge.

- Domestic waste arising from airport operations
- Hazardous waste as listed in the Hazardous Waste List 94/904/EC, including:
  - Chemicals
  - Fuel and oils
  - Clinical waste from first aid
  - Lead-acid batteries
  - Electrical equipment containing hazardous components
  - Solvent-based inks and paints
  - Pesticides
  - Herbicides
  - Containers and other materials which have been in contact with hazardous waste materials
- Packaging
- Tyres and other mechanical components from vehicles used in the operation of the airport all types of vehicles including large earth moving equipment.

16.3 IDENTIFICATION OF SPECIFIC WASTE TYPES, QUANTITIES AND TREATMENT / DISPOSAL OPTIONS

As part of the design process, the Contractor will identify:

- an indicative list of the types and quantities of wastes which could arise during the construction of the proposed Airport and supporting infrastructure project;
- an indicative list of the types and quantities of wastes which could arise during the operation of the proposed Airport and supporting infrastructure project;
- for each waste stream identified, the proposed treatment and /or disposal options; and
- for each waste stream identified, the quantity of waste sent for each treatment / disposal option

The Contractor will prepare a proforma to record this information and this will form part of the WMP.

Indicative lists of materials which could arise during the construction and operational phases of the project are included in section 16.1 and 16.2 above. These lists are not exhaustive and the Contractor will develop his own list of waste based on his design and knowledge of the construction works, the site, operational requirements and the Contract.

It is acknowledged that the lists of wastes will change throughout the Contract period due to changes in design, changes in materials used, improved knowledge of operational aspects, and the identification of alternative treatment / disposal options, etc. The Contractor will therefore be responsible for monitoring and updating the lists as necessary.

It should be noted that the Report produced by Jacobs Gibb, Integrated 30 year Waste Management Strategy and Action Plan for St Helena, based its requirement assumptions on the likely wastes arising from increased tourist visitors and not from the operation of the airport itself.

Although the volume of waste likely to be generated by the Airport operation may not be significant, the nature of some of the potential hazardous wastes (particularly from chemicals, oil based products and interception of oils in the water run-off and protection system) will cause additional pressure on the Island's current waste handling capability. This will need to be considered and mechanisms for waste management, including storage, handling and disposal included in the WMP.

16.3.1 Segregation, Containment, Storage and Labelling of Waste

The WMP will consider the following issues as a minimum:

- Waste to be stored will be segregated according to its type to prevent cross contamination and/or adverse reaction from the mixing of wastes. Separate storage facilities for waste to be recycled will also be provided by the Contractor.
- The Contractor will put in place the means of segregating waste for re-use or recycling, either at source or through a waste separation process, appropriate to the facilities available on the island.
- Procedures will be developed defining measures for the handling and storage of waste for all anticipated waste stream characteristics identified.
- Procedures will be developed defining how, when and where waste will be segregated. This will include the training of staff in the identification of waste types, their associated hazards and dealing with incidents involving waste.
- Procedures / strategy for the containment, storage and labelling of wastes during the construction and operation periods.
- How wastes will be adequately contained - waste will be adequately contained at all times to prevent its escape and minimise the risk of pollution incidents, dust, litter, etc.
- Containment facilities will be inspected on a regular basis to ensure their integrity and any defects made good as soon as reasonable practicable following detection.
- Containment facilities will be inspected on a regular basis to avoid overfilling of containers. Filled containers will be removed for storage / onward transfer and a replacement container provided.
- The Contractor will provide an appropriate storage facility for all waste arisings and for the waste types identified within the WMP.
- The location of storage facilities will consider their proximity to the source(s) of wastes to balance/minimise waste transfer movements, minimise the risk of damage by traversing plant and equipment, and the sensitivity of receptors in the event of a pollution incident.
- The location of storage facilities will consider the footprint of the facility and the area available for use. The Contractor may prefer to base storage facilities at the construction site or in Rupert's Bay prior to off-island transfer.
- The sensitivity of the Prosperous Bay Plain site means that it is not desirable to have quantities of waste stored on site, either on an interim basis or as a holding facility throughout the construction period. The Contractor may consider that a waste storage or transfer station may be more appropriate either in the Horse Point Landfill area or possibly in the Rupert's Bay area, depending on the types and volumes of projected wastes and the waste mitigation strategy to be used.
- Waste will be held in containers in a secure area where any spillages shall be contained and arrangements put in place to ensure the regular removal from the site and appropriate treatment and/or disposal.
- Storage facilities (temporary and permanent) will be used to safely store waste until an appropriate recycling / treatment / disposal route is to be used. This may include storage until the point of transfer of waste off the island and could involve waste separation and recycling operations.
- All waste containers will be appropriately and clearly labelled to confirm their contents and assist staff in the efficient segregation and containment of waste.
- Where invasive plant species are found, the Contractor will excavate soil, to a depth agreed with the Engineer, around the edge of the plant and dispose of the material in the manner specified by the Engineer. The material will not be reused for construction or landscaping purposes.
- Measures to control the risks of transfer of invasive plants and animals including invertebrates such as the brown widow spider will be implemented.

16.3.2 Waste Transfer

Waste arisings resulting from the management of the Contract will not be collected by SHG.

The Contractor will be responsible for:

- the collection and transfer of all waste arisings resulting from the Contract, including domestic waste, to SHG facilities or his own storage or treatment facilities, or suitable waste management facilities off the island;
- ensuring the adequate containment of waste to prevent its escape and the appropriate labelling of waste during transfer.
- ensuring the transfer of waste by registered or exempt waste carriers, where appropriate;
- ensuring that waste is transferred to waste management facilities which are appropriately licensed to accept the waste being consigned;
- maintaining an audit trail for all waste consigned, including the completion and keeping of waste transfer notes and consignment notes.
- dealing with all aspects the international transfer of waste materials off-island.
- The Contractor will develop and include procedures within the WMP for the transfer of wastes generated during the Contract.

16.3.3 Waste Treatment

The Contractor will consider potential opportunities for joint working with SHG in relation to waste issues and put forward proposals to be considered. Such proposals will aim to minimise waste, recycle and/or recover value from waste and treat wastes to reduce their environmental impact and the associated pressure on existing waste management facilities on the island.

Such proposals may include for example measures to improve waste awareness, waste minimisation, or opportunities for the development of recycling, treatment and/or disposal facilities for domestic wastes, wastes arising from the construction and operation of the airport, and/ other segregated and/or mixed waste streams.

The WMP will consider and where known identify the proposed measures to be implemented for the treatment of the various waste streams identified for the construction and operation of the facility. The proposals will identify the method and proposed location of treatment, the capacity for treatment, the outputs from treatment and their potential reuse, sale or disposal.

The Contractor will consider whether the likely generation of waste oils shall be treated separately from the current arrangements on St Helena.

16.3.4 Waste Disposal

As indicated in Volume 2, Chapter 16, Section 16.3.2 there are concerns over the projected remaining lifespan of the Horse Point Landfill site. The development of the WMP will therefore consider the pressure the works will generate on existing waste management facilities on the island.

It is considered that the export of all waste arising from the construction and operation of the airport will not be feasible. Equally the potential use of existing waste disposal facilities on the island is at present unclear and will depend on the proposals for treatment and disposal put forward by the Contractor in the WMP.

With the exception of unsuitable, inert material from the earthworks, ideally the majority of all wastes should be removed from the island. It may be the case that a percentage of

these materials would be economically useful for the Island and preclude the exploitation of other resources and/ or transportation. A management procedure for these wastes, if identified, will be included in the WMP.

Disposal mechanisms will be assessed and managed to the point of disposal. It will not be acceptable for example to merely 'remove' any issues to another territory which may itself have waste disposal issues without consideration of staged disposal and waste management options.

The WMP will therefore try to estimate the quantities and characteristics of the various types of waste identified which may require disposal to landfill, after minimisation, recycling, recovery, treatment and export. These proposals will be reviewed and considered. The Contractor will also consider whether landfill upgrade works could be presented as part of their strategic waste approach.

16.3.5 Plant and Equipment

The WMP will identify:

- the plant and equipment necessary for the management of waste during the construction and operation of the airport;
- the inspection, maintenance and repair of plant and equipment
- the disposal of waste generated from maintenance and repair of plant and equipment
- the disposal of plant and equipment

16.3.6 Contingency Plans

It is expected that the Contractor will consider and identify potential contingency measures for the management of waste. Such measures should include, for example, the management of waste in the event of an escape of waste leading to a pollution incident, plant failure, unexpected increases in waste, etc.

The WMP will identify contingency measures which may be available to the Contractor and the circumstances which may lead to their implementation.

16.3.7 Specific Waste Streams

A number of options for the disposal of waste arising from specific sources will be considered during the detailed design, construction and operation of the proposed access project. It is up to the Contractor to ensure that any proposals are negotiated and agreed with SHG and that they are in full compliance with legislation.

16.3.7.1 Disposal of Surplus Inert Wastes & Spoil

The disposal of waste, including any surplus spoil, will be managed to maximise the environmental and developmental benefits from the use of surplus material and to reduce any adverse environmental effects of disposal.

There are two potential routes for the disposal of these materials which are described below. In both cases due consideration will be given to the risks of transferring invasive plants and animals.

- **Landfill Cover & Restoration materials**

  Operation of a landfill requires inert materials to provide daily cover to prevent wind blow of wastes and to restrict vermin and flies and the escape of odour. Clean, excavated, but unsuitable, materials from the works may be suitable for this although materials with high proportions of silt or clay and coarse rock in excess of 100mm would not be suitable. In addition subsoils and topsoils are required for the final capping and restoration of the landfill.

  The Contractor would be required to provide sufficient plant and supervision to ensure correct stockpiling of the materials to avoid them being blown or washed away by rainfall. The stockpiles would be located in accordance with the landfill site operators' requirements. All stockpiles would be suitably placed and compacted immediately on arrival to reduce the infiltration of rainfall and reduce the likelihood of wind and water erosion. No indiscriminate stockpiling will be permitted. For long term stockpiles a planting programme may be required to protect the stockpiles from wind and rain. Full details of the materials (with sufficient supporting test data to confirm suitability) and a methodology should be submitted with any proposals for disposal via this route.

- **Reclamation of Water Erosion Gullies.**

  The Island has a large number of erosion gullies some of which could provide a suitable disposal point for unsuitable excavation wastes. SHG may be able to identify suitable areas once potential quantities for disposal are more accurately known. If the Contractor wishes to propose this disposal route they must provide a fully detailed restoration design, including hydrological analysis of the gullies and full details of any physical protection works and stabilisation planting with his proposal. Sufficient proof of the nature of the material proposed for this disposal route should also be provided in support of any proposals. Cost of the construction of gully reclamation works should also be considered in any proposals.

16.3.7.2 Disposal of Chemical, Oil and Fuel Wastes

The Contractor will segregate all wastes containing chemicals, oils or fuels and will ensure their safe disposal in strict compliance with the WMP.

The Contractor will contain any waste that includes oils, fuels or chemicals so as to prevent any contaminants leaching out into the environment. Disposal of these wastes will be undertaken strictly in accordance with the agreed WMP and will include for:

- The clear labelling of drainage systems and mapping connections
- Storing chemicals, fuels and effluent in areas where spillage will be contained
- Training employees in handling techniques and spillage control
- Isolating clean surface water run-off from general drainage
- Using drip trays under equipment
- Providing suitable spill kits and absorbent materials
- Regular cleaning of interceptors.

Two potential options may be feasible:

- The Contractor could provide a suitable oil storage and handling facility for the Island on the understanding that he can use the facility for disposal of his oils.
- Blending of waste oils into fuel eg for use in generators is a potential re-use route for used oils. Contractors could provide facilities for oil blending technology to the Island (eg The Oil-CAT from Clarus Technologies which blends 7.5% used oil with diesel and satisfies EPA emission standards) on the understanding that it can use the facility

16.3.7.3 Disposal of Hazardous Waste

There are no facilities on St Helena for the treatment or disposal of hazardous waste. In most instances it is expected that the Contractor will arrange for these materials to be removed from the Island and transferred to a suitable waste management facility for treatment and/or disposal. Specific proposals for an alternative approach for particular types of waste for example those which may have a beneficial reuse or value will be put forward for review with the Contractor's proposals or to the Engineer during the contract period.

The Contractor will provide special procedures for the treatment and disposal of Hazardous Wastes. The Contractor will undertake the disposal of Hazardous Wastes in accordance with the specific requirements for each type of waste. These will include, inter alia:

- Lead-acid batteries
- Electrical equipment containing hazardous components
- Solvent-based inks and paints
- Waste oils
- Pesticides
- Acids

The Contractor will identify those wastes that become classified as hazardous when they contain substances over specified thresholds. In any of these instances, the Contractor will:

- Provide storage in appropriate secure, accessible containers
- Inspect containers at least once a week
- Maintain a procedure for handling spillages
- Train staff in procedures to handle hazardous waste
- Keep an inventory of stored hazardous waste
- Ensure handling and transportation is undertaken in accordance with SHG Regulations
- Maintain an audit trail of consignment notes for at least three years
- Ensure recovery or disposal of waste is undertaken by authorised persons.

16.3.7.4 Sewage Treatment

The Contractor will provide for the effective collection, disposal and treatment of all sewage wastes generated by the airport. The Contractor will be responsible for all sewage waste disposal including:

- Collection
- Pumping and transportation
- Treatment
- Disposal

16.3.7.5 Compostable Wastes

There is potential for the disposal of clean compostable materials within the waste facility planned for the Island. This could include vegetation from site clearance, ensuring no invasive plants are composted, operations and food wastes from the construction camp and operational facility once completed.