ST KILDA ACCOMMODATION and ENERGY CENTRE
VILLAGE BAY HIRTA, ST KILDA, OUTER HEBRIDES

Galliford Try and QinetiQ

BIG Biodiversity Challenge Award Category: Monitoring, Maintenance & Management

Project overview

The project involves the construction of a new accommodation building and energy centre for the Ministry of Defence (MOD) on the remote island archipelago of St Kilda located 41 miles west of the Outer Hebrides in the northwest of Scotland. The existing accommodation block and energy centre will be demolished. All materials are brought to the island by a landing craft called M/S Maursund and all personnel arrive by helicopter.

What were the biodiversity conditions on site, prior to the enhancement?

The archipelago of St Kilda is designated as a dual inscription World Heritage Site for its cultural and natural heritage. The islands also have various other natural heritage designations, such as SSSI, SAC, SPA and NNR. St Kilda is owned by the National Trust for Scotland (NTS) with the MOD leasing parts of Hirta (the main island), and jointly managed by the Strategic Management Group. A full range of environmental surveys were carried out prior to development and planning conditions imposed with regards to environmental aspects included a site-specific construction environmental management plan, appointed independent ECoW and a site waste management plan.

What were the reasons behind this project ?

The key environmental objective for the development was to minimise the impact of the base and its activities on this sensitive location. A unique sustainability framework was developed by Rybka Consulting as a measure of the level of sustainability considered during the design and construction of the building. The project is aiming towards achieving BREEAM 'Outstanding', but given the location of the project, using standard BREEAM assessment would be impossible. Additionally, the isolated and unique nature of St Kilda and the importance of the natural heritage means a critical requirement of the development is to maintain the current exemplary biodiversity of the archipelago.

M/S Maursund prior to unloading on the slipway on Hirta.

Soay sheep with the construction site in the background.

What were the biodiversity measures taken?

A comprehensive Biosecurity Management Plan was developed in consultation with the client, NTS, Atmos, Scottish Natural Heritage and Marine Scotland in order to mitigate the risk of an outbreak of invasive non-native species (INNS). Such an outbreak could irreparably damage the existing biodiversity of St Kilda. Both terrestrial and marine INNS were considered. The greatest risk to the island would be the introduction of brown rats with devastating effects on the seabird populations. Additionally, no organic matter including soil or seeds are permitted to be brought to the island.

A second biodiversity measure of the project is the net gain of grassland habitat, which is important to the Village Bay area of St Kilda. Village Bay is where the majority of the built heritage is found and therefore is protected as a Scheduled Ancient Monument (SAM) by the Historic Environment Scotland. Habitation of Village Bay goes back several thousand years, with much of the land between the bay and The Street (where the iconic row of blackhouses and 'modern' cottages are situated) having previously been worked for crop production.

The increase of grassland habitat as a result of this bespoke project will be up to 2750m^2. This is due to both the planned restoration of the footprint of the existing buildings following demolition (2750m^2) and the application of green roofs to the new accommodation and energy centre buildings using turf from the construction footprint. It is intended that these roofs will not be grazed by the 'native' Soay sheep and therefore grass will effectively have a greater ecological value than the surrounding grazed habitat. Seed-heads will be allowed to flourish with wind dispersal to the surrounding habitat which will provide an additional seed source to the surrounding grassland and therefore positively contribute to the biodiversity of St Kilda.

Turf stored on pallets and fenced off from Soay sheep for the reuse on the roofs of the new building.

Rat trap as a biosecurity measure on the slipway on Hirta.

Further information

The unique Biosecurity Management Plan considers the risks of INNS to the island and details measures to mitigate their outbreak. These measures include: a dedicated biosecurity area and disinfection system at the export port to ensure no organic matter reaches St Kilda; biosecurity monitoring at both the export port (bait stations) and on the island (mammal traps); bait stations and traps aboard the M/S Maursund with an inspection regime during sailing and upon arrival to the island; dedicated watches of the ship unloading at the slipway to monitor for any unwanted escapees; and video recording every unloading operation as a back-up. Underwater dive surveys are carried out on the Maursund to ensure no marine INNS are present and not transported to the waters surrounding the archipelago. In the case of the green roofs, the turf covering the footprint of the new buildings was carefully stripped and stored in layers on pallets, in accordance with a method agreed with NTS and the ECoW. The pallets of turf are stored in a dedicated fenced area to prevent grazing by sheep, and are monitored and watered when required. Soil and material excavated from the site will be used to restore the footprint of the demolished buildings. Biosecurity restrictions mean grass seed cannot be imported and to ensure sufficient stocks for these tasks, seed is locally collected from grassland on the island (test batch collected in summer 2017). A natural fertiliser using Soay sheep dung is also being trialled. It is anticipated that the restored areas will be monitored post-construction with additional seed applied if required.

Project Team

- Client – QinetiQ, MOD/DIO; Landowner – National Trust for Scotland
- Design team members – Wittets Ltd, Atmos, Rybka and Guard Archaeology

What was the motivation for carrying out the enhancement?

The primary motivation is to maintain the unique biodiversity of St Kilda by a thorough and stringent biosecurity plan. A net gain in biodiversity will be made by demolishing the existing military buildings and installing turf roofs. The whole construction team is engaged, which is evidenced by the group participation to clear rubbish on the shore of Village Bay (swept in by the currents, wind and tide; not construction litter!). These actions, which go over and above industry norms and standards, are being implemented in order to achieve the best possible environmental outcome for this unique project.

Soay sheep in the Village Bay with M/S Maursund in the background in May 2018.

Galliford Try site team with collected rubbish from the beach clean in the Village Bay on Hirta in September 2017.
(All photos in this case study have been taken by Kaidi Kuusk)