The development of a unique world leading facility on an underused portion of land incorporating golf equipment testing, research, education and an exemplar of best practice of golf hole construction and maintenance. One of the core values of the project is to ensure that it has only a positive impact on the surrounding natural environment. It is envisioned that the knowledge gained from all aspects of this work will be shared with the worldwide community.

The R&A
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cover photo credit: Paul Kimber
Executive Summary

Allan Robertson House, covers an area of 2.25 hectares comprising a building with associated testing grounds, hard and soft landscaping works, car parking, and access for vehicles and pedestrians. It has been developed to provide The R&A with a facility that demonstrates and supports its position as a leading authority on the governance of golf equipment worldwide. The building was designed by Wellwood Leslie Architects and the golf ground was designed and construction by Paul Kimber (EIGCA member) of the Kimber Golf Group.

The project is located at the far end of the 500m long existing Kingsbarns driving range, which is situated on the northern edge of the designated “Designed Landscape” of The Cambo Estate. The project resourcefully occupies a previously unused and semi degraded piece of land. The low profile and modular style building with extensive green roof, is situated below the surrounding mature tree line which surrounds the driving range field on the north, east and west sides.
Project Description

Allan Robertson House, was conceived to provide a new world-class testing and research facility which would bring together the existing operations of the Equipment Standards department in a single location, and at the same time enable delivery of an enhanced service to golfers, manufacturers and affiliated organisations. Site selection was a crucial project decision, and the final choice utilising an underused section of Kingsbarns Golf Links existing warm up area has been instrumental in maximizing the potential opportunities, which covered all three of GEO’s sustainability pillars - nature, resources, and communities.

The facility extends to 2.25 hectares in total; comprising a test centre building of 22,750 sq. feet with green roof, a car park with permeable paved surfacing accommodating up to 30 cars, and outdoor research areas including two par 3 length golf holes, bunkers, green complexes and teeing grounds. Extensive landscape areas include a 2.6 metre deep attenuation pond with marginal wetland, hedgerow and shrub planting adjoining the building and car park, and woodland edge planting. Vehicle access is from Kingsbarns Golf Links via an asphalt surfaced track alongside the existing shelterbelt immediately west of the warm up area, there is also a new direct pedestrian link to the path network providing access to the village.

“For the beginning The R&A were committed to achieve a project of the highest quality, which in turn would provide an opportunity to showcase support for wider sustainability principles and their broader promotion. Throughout the development process, were very aware of the conservation of the designed landscape and our exciting opportunity to improve and enhance this unused piece of land.”

Dr Steve Otto, Director of Research and Testing, The R&A
The area has now been successfully transformed, providing significant ecosystem benefits, notably with regard to the wetland and woodland habitats, in addition to new species-rich grasslands. The existing ancient woodland has been safeguarded and enhanced by the management programme, contributing to the wider setting of the Designed Landscape of the Cambo Estate.

Mike Wood, Independent Verifier - Allan Robertson House
Key Achievements

Allan Robertson House presented an opportunity to establish a world leading dedicated equipment test centre in Scotland, while improving the quality and health of the existing landscape by retaining valuable existing species and adding a diverse palette of native planting. These benefits result are the direct result of the sustainable approach used throughout the entire project process, which encompassing planning, design and construction. The key achievements of the project are summarized below under the appropriate sustainability headings.

- Over 9,000m² of diverse new habitats created
- 100% retention of the ancient woodlands on site.
- Sustainable management plan with local pigs in residence.
- Retained 62m² of rare marsh orchid
- 1,580m² of extensive green roof
- 5,294m² of species rich rough grassland which includes wildflower species.
- Less than 5% of the site is irrigated
- 100% recycled water sourced from on-site attenuation pond
- 100% of drainage from building and surrounds re-captured
- Energy efficient building design with large thermal massing and passive design principles of lighting and ventilation.
- Shared maintenance facilities and equipment with Kingsbarns Links
- Local contractors and suppliers preferred
- Fully integrated and accessible with public transport network
- Educational and resource centre of industry and community purposes
- Access to rare equipment and testing apparatus for the wider community
A highly appropriate and creative site selection process started this project on a great foundation. Putting an underused piece of land to a highly productive use was a very resourceful step, which combined with a shared agreement for maintenance time and equipment has resulted in a smart and efficient project for the long term.

Sam Thomas - Manager Golf Development, GEO Foundation
Design Stage

Overview
Key design considerations addressed through the project included adoption of the “life cycle assessment” approach, siting of the project on underused land, the synergy and economies of resource use possible through a shared maintenance agreement with Kingsbarns Golf Links, opportunities for water recycling and reuse for irrigation, enhancement of biodiversity, the conservation of ‘Designed Landscape’ woodland features and the education possibilities for industry wide, international/global, and local community initiatives.

Vision:
The development of a unique world leading facility on an underused portion of land incorporating golf equipment testing, research, education and an exemplar of best practice of golf hole construction and maintenance. One of the core values of the project is to ensure that it has only a positive impact on the surrounding natural environment. It is envisioned that the knowledge gained from all aspects of this work will be shared with the worldwide community.

Goals:

Transform and enhance an underused and degraded piece of land into a diverse, healthy and native landscape, which retains the limited desirable flora from its previous condition.

Minimise the inputs required through the use of local supplies, with longevity of availability, and suppliers in the development of the project has been a central aim to ensure the whole-life of the project is considered from its inception. The design of the environment, and choice of species, has been made with a view to reducing the level of resources needed to maintain the facility, whilst presenting itself as world class.

Create a unique facility incorporating a diversity of disciplines that can educate and foster the relationship between golf, nature and the wider community.
Activities
The following text outlines the process that went into developing the Allan Robertson House with sustainability at its heart. It illustrates the commitment and careful consideration of the project team’s objectives and vision throughout the early stages of the project’s life.

Nature
The existing site at the northern margin of the practice ground comprised amenity turfgrass which was of limited nature conservation value. The area not occupied by the new building and external works has now been successfully transformed, with more than 9000m² of diverse new habitats having been created.

These will provide significant ecosystem benefits, notably with regard to the wetland and woodland habitats, in addition to new species-rich grassland roughs which define the green complexes, tees, and fairways. The existing ancient woodland on the site periphery has been safeguarded and enhanced by the management and planting programme, contributing also to the wider setting of the site within the Designed Landscape of the Cambo Estate.
The design of the test centre building itself integrates exceptionally well with the landscape setting; the roofline is set well below the canopy level of existing woodland, its overall form is unobtrusive, and the materials have been carefully selected to remain visually neutral against this wooded backdrop.

**Resources**

Whole life costing and life cycle analysis formed an important consideration in the overall design process. Passive design principles have been incorporated into the heating, lighting, and air conditioning systems of the building; including use of an air source heat pump, maximizing the benefits of fenestration on the south-facing elevation, and enhanced insulation from the green roof system. The stand-out resource achievement in the design of the external testing grounds is the capability to use 100% recycled irrigation water drawn from the on-site attenuation pond, which in turn receives all drainage from the building and surrounds. The irrigated turf area has been limited to less than 5% of the site area, and selection of native fescue grass species will further reduce life cycle resource inputs, chemicals.

100% recycled water for irrigation collected on site
Allan Robertson House was from its inception conceived as a singular and world-leading facility, and participation in the OnCourse® Development programme was regarded as an appropriate and essential facet of its overall aspiration for excellence.

Mike Wood, Independent Verifier - Allan Robertson House
Community
The fully customised design of the centre will allow new standards to be set in the testing of golf equipment at a worldwide level. This in turn presents further opportunities for the R&A in education not only directly within the industry, but also more widely through the general interest created. In addition the adoption of very high environmental and sustainable design standards in the external elements provides opportunities to communicate these messages and develop wider links with other golf and community organisations.

<5% the site can be irrigated

1,580m² of extensive green roof habitat

photo credit: Paul Kimber
Implementation of the soft landscape works was generally of an exceptionally high standard, from the thorough initial site set-up and protection work, which included extensive protective fencing to the existing woodlands and a badger sett location, right through to the final seeding and planting works.

Mike Wood, Independent Verifier - Allan Robertson House
Construction Stage

Overview

Construction work on Allan Robertson House began in winter 2015. Key considerations at the construction stage included phasing to accommodate continued operation of the Kingsbarns warm up area and the building works requirements, a high standard of protection for the existing Designed Landscape woodland, and reduction of overall resource inputs by careful selection of materials and suppliers.

The construction work at Allan Robertson House was executed by Muir Construction (buildings, infrastructure and car park) and by Kimber Golf Ltd for the specialist golf construction works and soft landscaping. The final construction works were completed in August 2017.

During the construction works the level of site protection, pollution controls and logistics control demonstrated were in line with expected best practice and local suppliers were sought at every opportunity to the benefit of time and cost savings as well as to the local economy and environment. Continual monitoring and assessment during the construction and grow in was overseen by STRI (Agronomy) to ensure the appropriate level of inputs were maintained and aimed to minimise the requirements where ever possible.
Activities
The following text outlines the construction process of the Allan Robertson House. It illustrates the steps taken during construction to deliver the highest quality golf course in a responsible, practical and resourceful way.

Nature
Implementation of the soft landscape works was generally of an exceptionally high standard, from the thorough initial site set-up and protection work (which included extensive protective fencing to the existing woodland and a badger sett location), right through to the final seeding and planting works.

Particularly notable were the use of a suction excavator for irrigation and drainage trenches where these were located close to tree root systems, and the very high quality of planting preparation and specification of all plants, which should ensure rapid and successful establishment. Also notable was the successful translocation of species ranging in size from orchids to reeds, and the use of colonization for appropriate areas of wetland and wild flower meadow.

Resources
The required resource inputs at the construction stage have been demonstrably reduced through careful selection of materials and suppliers. Examples include all planting material from R&B Nurseries, Lasswade, Edinburgh, rootzone sand and
topsoil from Carnoustie Golf Links, and topdressing sand from Hugh King, Ayrshire. (Due to availability issues, additional turf for greens and tees was required and was sourced from the nearest supplier of appropriate quality sea-washed turf, namely County Turf, Lincolnshire). The attenuation pond was successfully constructed using the traditional clay puddling method, avoiding the need for synthetic liner material. Other notable efforts made included:

- Certified timber cladding on the clubhouse
- 100% permeable paving in all car park spaces
- Shared construction huts with Kingsbarns Golf Links accommodation
- Passive design principle and low energy decisions made on building specification

Community
The contractors appointed both for the main building contract and for the golf and landscape works were both Scottish companies, based respectively in Glasgow and in Perthshire. All staff working on the project were employed by these two firms. The working practices accommodate local community amenity through measures which included restricted working hours, site traffic restrictions, use of designated haul routes and thorough wash down procedures were all applied.

Education events in the areas of environment, agronomy and turfgrass management have been initiated in addition to educational tours of the facility. The planned access links to the village of Kingsbarns via footpath and pedestrian gate have been completed.
“Right from the decision of site selection to the type of grasses begin used and trialled, innovation and creativity from the team has helped to shape this project into a showcase of sustainable golf and test centres globally.”

Sam Thomas, Director of Golf Development at GEO Foundation
“As the UK’s first GEO Certified® Development, the team behind Allan Robertson House has demonstrated great vision, combined with attention to detail to deliver a highly sustainable golf development. We were particularly impressed with the way decisions were made over the most environmentally sensitive use of the site, the selection of grasses and the approach to passive building design.”

Jonathan Smith, Executive Director of GEO Foundation