Sustainability Blueprint

IRIE FIELDS GOLF COURSE

Planning & Design Stage

Golf Environment Organization
Legacy Programme

Produced by: Belmont Resorts Limited

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1. INTRODUCTION AND OVERVIEW

PURPOSE OF THE REPORT

This Sustainability Blueprint has been prepared by Belmont Resorts Limited in order to present a concise summary of the anticipated sustainability outcomes generated by the project. It aims to outline the practical ways in which this golf development will benefit local communities, individuals, and the environment.

It provides a comprehensive understanding of Belmont Resorts Limited’s sustainability vision and goals, and outlines a roadmap showing how these will be translated into real world deliverables in the subsequent stages of the project.

The Blueprint forms the second of four milestone reports to the Golf Environment Organization, prepared for Kittitian Hill on the pathway to receiving full GEO Certified Development status.

GEO LEGACY

The GEO Legacy programme aims to showcase the world's most sustainable golf developments. It gives recognition to projects which demonstrate leadership from local through to global level in all three pillars of sustainability; environment, society, and economy.

GEO verify that the project is on track at key milestones corresponding to the following stages of development:

- Project Appraisal
- Planning & Design
- Construction
- Management hand-over

Kittitian Hill formally enrolled in the GEO Legacy programme in June 2011.
PROJECT DESCRIPTION

Kittitian Hill resort covers an area of 160 hectares located on the north-west coastline of St Kitts, on the lower slopes of Mount Liamuiga. The principal elements of the development include an 18-hole golf course with clubhouse, farm, resort village, spa, hotel guesthouses and villas. The resort was conceived as a model sustainable tourism project in accordance with the National Physical Development Plan prepared by the Government of St Kitts and Nevis. Opportunities to develop and promote education, both formal and informal, form a recurring theme, addressing entrepreneurship in the widest sense, and including specific work skills required within the island economy which dovetail closely with the project concept including organic farming, art and culture, and environmental stewardship.

DEVELOPER PHILOSOPHY

Belmont Resorts Limited, the developer of Kittitian Hill, believes that the long-term sustainable development of a region is the responsibility of its people. New business models must be created, based on a win-win approach to development, where commercial success is combined with regeneration of social and cultural fabric. Human capital is regarded as the most important resource at the heart of our approach, with every aspect of the proposals tied-in wherever possible to the development of an enhanced sense of identity, self-sufficiency, and quality of life.
2. VISION AND GOALS

VISION

• To deliver a genuinely holistic sustainable tourism project which brings together community and culture, along with mindful conservation of natural resources.

GOALS

NATURE

• To create productive landscapes, which provide authentic produce and enhance biodiversity.

WATER

• To minimize water consumption on the course.

ENERGY

• To develop and implement a comprehensive energy strategy for the resort construction and operation.

SUPPLY CHAIN

• To incorporate socially and environmentally responsible procurement policies as a core strand of the project.

POLLUTION

• To develop the first fully organically maintained “warm season” golf course.

COMMUNITY

• To help build an enhanced sense of identity, self-sufficiency, and quality of life for the people of St Kitts.
3. ROADMAP
<table>
<thead>
<tr>
<th>THEME</th>
<th>GOAL</th>
<th>TARGET AREAS</th>
<th>PROJECT TARGETS</th>
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</thead>
<tbody>
<tr>
<td>NATURE</td>
<td>To create productive landscapes which provide authentic produce and enhance biodiversity</td>
<td>EDIBLE LANDSCAPES</td>
<td>• 25 Hectares of organically grown food-producing trees, shrubs and vegetables will be planted</td>
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<td>ENHANCED BIODIVERSITY</td>
<td>• On site nursery is cultivating existing and introducing new species of tropical fruits and other edible plantings</td>
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<td>• Natural grasses Cynodon Dactylon, Cous Cous and Sportina will be planted in rough areas to enhance wildlife habitat</td>
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<td>• Clear identification and efficient use ecosystem services, such as crop pollination, carbon sequestration and recreational experiences (ecotourism)</td>
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<td>RETAIN SITE TOPOGRAPHY</td>
<td>• Earthworks area restricted to 55 Hectares to minimise disturbance of natural contours for golf course design</td>
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<td>• Volume of earthwork maintained to 250,000 m³</td>
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<td>• All surplus earth used within project. No earth sent to landfill</td>
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<td></td>
<td>• Landscape Plan reference 1142.409.01</td>
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<td></td>
<td></td>
<td>• Plant nursery established</td>
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<td>• Two greenhouses (30'x 100’) constructed to be used as a propagation area</td>
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<td>• Bare root stock and seeds of plant varieties imported to prevent pathogens</td>
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<td></td>
<td>• Landscape Plan reference 1142.409.01</td>
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<td>• General Planting List reference Appendix B (Horticulture list pending)</td>
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<td>• Species specific Landscaping Plan (Pending)</td>
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<td></td>
<td>• Earthworks Plan reference 1142.416.01</td>
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<td>• Tree relocation undertaken in all cases (No tree removal due to development)</td>
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</tbody>
</table>
| ENERGY  | To develop and implement a comprehensive energy strategy for the resort construction and operation | DEMAND                                                                       | • Golf course irrigated area limited to 28 hectares.  
• Additional non-irrigated maintained areas within the development site limited to c. 15 hectares  
• Earthworks volume for golf course construction limited to c.250,000m³  
• Total length of piped drains on golf course limited to 15,000 linear metres (TBC)  
• Use of vehicles within resort minimised by the masterplan layout and provision of paths  
• Passive building design principles and technologies to form a key component of architectural plans  
• Maximize clean energy solutions with Solar in the immediate term; Bio Diesel in the medium term; and Geothermal in the long term | • Energy Consumption Calculations  
• Irrigation Plan reference KTN002_A & KTN002_B  
• Earthworks Plan reference 1142.416.01  
• Drainage Plan reference 1142.406.01  
• Building Design Plans (Club House)  
• Building Design Plans (Central Services/Maintenance)  
• Building Design Plans (Half Way House 8th Hole)  
• KH Energy Concept Note (Pending) |
|         |                                                                      | EFFICIENCY                                                                   | • Golf course irrigation system to utilise Best Available Technology to optimise efficiency of energy use  
• To use Best Available Technology in energy efficient appliances in all buildings  
• PV cells power half-way houses  
• Electric cars, powered PV panels to be made available for guest use on and off site  
• Diesel maintenance vehicles, and turf equipment ready to use biodiesel | • Irrigation design plans and specification reference KTN002_A, KTN002_B & KTN050811.B01  
• Building Design Plans (Club House)  
• Building Design Plans (Central Services/Maintenance)  
• Building Design Plans (Half Way House 8th Hole)  
• KH Transportation Concept Note (Pending) |
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| SUPPLY CHAIN  | To incorporate socially and environmentally responsible procurement policies as a core strand of the project | PURCHASING POLICY                                 | • An environmental and ethical procurement policy will be written and implemented  
• Local labour is used whenever possible in evaluating whether or not to make purchases                                                                                                                   | • KH Procurement Concept Note (Pending)                                                                                                                                                                |
|               |                                                                      | RECYCLED AND RECYCLABLE PRODUCTS AND MATERIALS    | • All surplus rock and gravel on site to be used to produce aggregate used in buildings and golf course construction – no surplus soil to landfill  
• 400 cubic metres local stone from golf course clearance works to be used in walling to swimming pools and on driving range  
• Recycled glass water bottles through KH2O filtered water program  
• Include recycling facilities throughout golf course and hotel                                                                                                                                  | • Location of Waste Management Plant and Recycling Facility (Central Service Site Plan)  
• Building Design Plans for Waste Management and Recycling (Central Services/Maintenance)  
• KH Waste and Recycling Concept Note (Approval Pending)                                                                                                                                                         |
|               |                                                                      | LOCAL SUPPLIERS                                   | • Over 50% of all construction materials sourced from St Kitts  
• 50% of sand used from on-site sources. Sand used in greens, where local sand does not match specification, imported regionally from Guyana                                                                                                                                 | • List of Key Suppliers (Pending)                                                                                                                                                                           |
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<td>WATER</td>
<td>DEMAND</td>
<td>Golf course irrigated area to be restricted to 28 Hectares, Water demand limited to 250,000 gallons per day for six months per year. Grass species selection to reflect agreed criteria including water maintenance requirements. Use of native grass and other plant species adapted to local climate in out-of-play areas and landscape infrastructure</td>
<td>Grassing Plan reference 1142.408.01 Species selection of Tifway 419 Bermuda on main in-play areas, with native grass in roughs Grass species comparison matrix prepared by EGD Kittitian Hill Grass Selection Matrix</td>
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</tr>
<tr>
<td>WATER</td>
<td>SOURCES</td>
<td>TSE from hotel to supplement bore hole sources and provide 20% of demand Integrated rainwater collection system from all building roofs Use of catch basins under the course to redirect run off from selected holes back into irrigation system</td>
<td>Use of TSE, grey water, and rainwater on golf course Maintenance Centre designed with dual plumbing for use of both recycled water (eg. toilet flushing) and grey water system (eg. irrigation)</td>
<td></td>
</tr>
<tr>
<td>WATER</td>
<td>EFFICIENCY</td>
<td>Golf course irrigation system to utilise Best Available Technology to optimise efficiency of water use Water budget schedule for irrigation system use - smart pumps, potentiometers, daily checks Measure the landscape independently from building demands</td>
<td>Irrigation plans and specification reference KTN002_A, KTN002_B &amp; KTN050811.B01 (Revision Pending)</td>
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<tr>
<td>POLLUTION</td>
<td>To develop the first fully organically maintained &quot;warm season&quot; golf course</td>
<td>TURF MANAGEMENT</td>
<td>• A Turf Management plan will be developed that will avoid the need for use of chemical pesticides (hand pulling, low mowing heights, livestock, citric/acetic acid)</td>
<td>• Turf Management and Progressive Pest Removal Plan (Pending)</td>
</tr>
</tbody>
</table>
|            |                                                                      | PROTECTING AND ENHANCING SOIL     | • Integrate long-term measures within the overall resort design to resolve the inherent sensitivity of the site to soil erosion  
• Disturbed area / extent of earthworks limited to 55 hectares  
• Erosion control measures implemented on all exposed soil areas prior to sprigging and planting  
• Cleared vegetative and organic material reworked into topsoil to prevent moisture loss and wind erosion.  
• Complex organic fertiliser use only. Reduces chemical run-off  
• Follow USDA guidelines for organics | • Earthworks Plan 1142.416.01  
• Drainage Plan (Confirm Reference #) |
|            |                                                                      | EMISSIONS                         | • Earthworks volume for golf course construction limited to c.250,000m³  
• Vegetable-based lubricants used throughout  
• Electric and Bio Diesel vehicles for all guest use and maintenance equipment | • Earthworks Plan 1142.416.01  
• KH Transportation Concept Note (Pending) |
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<td>COMMUNITY</td>
<td>To help build on enhanced sense of identity, self-sufficiency and quality of life for the people of St Kitts</td>
<td>WIDER ECONOMIC MULTIPIERS</td>
<td>• Over 95% of workforce is local from St. Kitts</td>
<td>• KH Caddy Program Concept Note <em>(Pending)</em></td>
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<td>• Employment of local youths to act as caddies to provide employment and entrepreneurship opportunities</td>
<td>• KH Foundation Concept Note <em>(Pending)</em></td>
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<td>• Kittitian Hill Foundation as a whole to generate &gt;US$100k pa to support local community projects including small Business Development Program</td>
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<td>TRAINING AND EDUCATION</td>
<td>• Orientation and Training programs for all employees to focus on Kittitian Hill Philosophy and the pillars of Sustainability</td>
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<td>• Caddies to become ambassadors of the Cultural heritage of St. Kitts through their role of providing such a personal and long (+/- 4 hours) guest experience</td>
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<td>• Active member on the Council for Workforce Development in Tourism for St. Kitts. Long Term objective of establishing Training Institute for Sustainable Tourism (TIST) as an education centre for all levels of business skills</td>
<td>• KH Orientation and Philosophy Statement <em>(Pending)</em></td>
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<td></td>
<td>• Inter-Agency Council on Sustainable Destination Management – Workforce Development Group Document</td>
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