

Appendix 2 Environmental Baseline

2.1 Baseline Data

This section includes baseline environmental data for Tiree collected by means of a desk based study using:

- SNHi web based data and reporting
- Pastmap
- UK Biodiversity Action Plan
- Argyll and Bute Biodiversity Action Plan
- SNH Tiree, Coll and the Western Isles Natural Heritage Futures (2002)

2.2 Description of Tiree

Tiree is located on the west coast of Scotland, 22km west of Mull and is the most westerly of the Inner Hebrides. The island is approximately 3 by 12 miles and primarily has a very flat topography, the highest point on the island being Ben Hynish which stands at 141m. The main settlement on the island is Scarinish, while several other settlements are scattered across the island connected by a single track road network.

The majority of the island is used for agricultural purposes, predominately for livestock rearing and some crop growth.

2.3 European Designated Habitats and Species

There are 8 designated sites on the island, these are as follows:

| Designation | Name | Distribution | Comment |
|-------------|----------------------------------|------------------------------|--|
| SSSI | Ceann a' Mhara to Loch a' Phuill | Western side of island | Biological: Habitat: Coastal Biological: Habitat: Freshwater |
| SSSI | Hough Bay and Balevullin Machair | Northern side of island | Biological: Habitat: Coastal Biological: Habitat: Machair Grassland Biological: Habitat: Standing Water |
| SAC | Tiree Machair | Island wide designated areas | Embryonic shifting dunes; 'white dunes', 'grey dunes', humid dune slacks, machairs, natural eutrophic lakes with |

| Designation | Name | Distribution | Comment |
|-------------------------------|---|--|---|
| | | | <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation. |
| SAC RAMSAR SSSI | Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) | Island wide designated areas The majority of the islands coastline is designated as a RAMSAR site due to the wetland habitat. | SPA & RAMSAR - Dunlin, Redshank, Oystercatcher, Ringed Plover, Turnstone, Barnacle Goose, Greenland white-footed goose. SSSI - breeding waders and terns, wetland breeding bird assemblage, wintering shoreline waders, wintering Greenland geese, coastal dunes and machair, standing water and associated aquatic flora. |
| SAC | Loch a' Phuill | South-western side of island | Natural eutrophic lake with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation. |
| SPA | Tiree (Corncrake) | Island wide | Corncrakes |
| Area of search for Marine SPA | Coastal Waters | Coastal waters around Tiree including Array site, Coll and Mull | Wintering Great Northern Divers |
| Area of search for MPA | Skye to Mull MPA | Coastal waters around Tiree, Coll, Mull, Small Isles and Skye (Eigg, Muck and Rhum) | Basking Sharks and Minke Whale |

2.3 Machair

Machair is a distinctive sand dune formation formed by a particular combination of physical factors, including climate and landform. Machair is formed when sand with a high shell content is blown onshore on to which vegetation develops that is typical of calcareous to neutral sandy grassland. The habitat type supports large breeding bird populations and is particularly important for waders and corncrake (*Crex crex*).

Low intensity farming such as the traditional agricultural practices that take place on Tiree benefit the machair. Sheep and cattle rough graze around the island's coastal areas.

JNCC Description – Tiree is considered to have the most extensive and diverse area of **machair** outside the Outer Hebrides. 24% of the total area of the island is machair. The machair complex on Tiree is uncultivated and has a long history of seasonal grazing. There is a diverse series of physical machair formations. The Tiree complex is also noteworthy as one of the few examples of rabbit-free machair in Scotland. An Fhaodhail and the Reef is an extensive area of wet machair grading into an extensive marsh and wetland (An Fhaodhail), and is the only site in the Inner Hebrides that is influenced by saline water. The site is unusual in that it is grazed only by cattle, a traditional management practice that has maintained an extremely rich and varied flora. In contrast, Hough Bay – Balevullin is a complex of dry machair and hummocky dunes forming an intricate mosaic with wet machair and dune slack vegetation

2.4 Locally Designated Sites

There are approximately 18 Local Nature Conservation Sites on Tiree as identified within the Argyll and Bute Local Plan (2009).

2.5 Environmental Baseline Summary

| Environmental Topic | Summary of Environmental Baseline | Implications for Operations & Maintenance (O&M) |
|---------------------|---|--|
| Geology & Soils | <ul style="list-style-type: none"> Tiree is part of the Lewisian Complex - Gneiss. Metamorphic Bedrock formed approximately 545 to 4600 million years ago (British Geological Survey) including some areas of igneous intrusions with superficial marine deposits of sand and gravel and wind blow sands. No issues relative to groundwater, contaminated land, mining/stability or quarrying have been identified at this stage. | <ul style="list-style-type: none"> Localised geo-environmental requirements will be assessed as part of detailed O&M design should this be Tiree based. |

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|---------------------------|--|--|------------------------|----------|------------------------|--------|----------------|------|----------|--------|--|-------------|------|--------|--|-------------|------|--------|-------------------------------------|-------------|------|--------|----------------|---------|------|--------|---------------------|---------|------|--------|--------------------------|---------|------|---|
| Land Use & Infrastructure | <ul style="list-style-type: none"> Primarily agricultural land / rough grazing Dispersed settlements / individual housing Single track road network | <ul style="list-style-type: none"> If crofting jobs are reduced/crofters move jobs to O&M, land management may decline. Assessment of croft boundaries/habitat management as a result of crofting should be undertaken to assess potential changes. Assessment of road network/potential upgrades required. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water Quality | <ul style="list-style-type: none"> Drinking water protected areas (surface water): present – Loch a' Phuill and surrounds Drinking water protected areas (groundwater bodies): present – all of Tiree designated <table border="1" data-bbox="483 826 1469 1337"> <thead> <tr> <th>Water Body ID</th> <th>Water Body Name</th> <th>Category</th> <th>Current Classification</th> </tr> </thead> <tbody> <tr> <td>100238</td> <td>Loch a' Phuill</td> <td>Lake</td> <td>Moderate</td> </tr> <tr> <td>150379</td> <td>Tiree bedrock and localised sand & gravel aquifers</td> <td>Groundwater</td> <td>Good</td> </tr> <tr> <td>150380</td> <td>Balephuill Bay coastal sand and gravel</td> <td>Groundwater</td> <td>Good</td> </tr> <tr> <td>150381</td> <td>Hynish and Gott Bay sand and gravel</td> <td>Groundwater</td> <td>Good</td> </tr> <tr> <td>200086</td> <td>Coll and Tiree</td> <td>Coastal</td> <td>Good</td> </tr> <tr> <td>200119</td> <td>Sea of the Hebrides</td> <td>Coastal</td> <td>Good</td> </tr> <tr> <td>200505</td> <td>Atlantic Ocean – SW Mull</td> <td>Coastal</td> <td>Good</td> </tr> </tbody> </table> <p>(Data source: SEPA RBMP)</p> | Water Body ID | Water Body Name | Category | Current Classification | 100238 | Loch a' Phuill | Lake | Moderate | 150379 | Tiree bedrock and localised sand & gravel aquifers | Groundwater | Good | 150380 | Balephuill Bay coastal sand and gravel | Groundwater | Good | 150381 | Hynish and Gott Bay sand and gravel | Groundwater | Good | 200086 | Coll and Tiree | Coastal | Good | 200119 | Sea of the Hebrides | Coastal | Good | 200505 | Atlantic Ocean – SW Mull | Coastal | Good | <ul style="list-style-type: none"> Scottish Water would be approached as part of the consultation process to identify existing foul water infrastructure and capacities. Adherence to statutory and other guidelines Confirm risk and design to meet any flood management requirements Surface Water drainage (SUDS) will follow guidance provided within the CIRIA SUDs Manual and Sewers for Scotland (2nd Edition) criteria |
| Water Body ID | Water Body Name | Category | Current Classification | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100238 | Loch a' Phuill | Lake | Moderate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150379 | Tiree bedrock and localised sand & gravel aquifers | Groundwater | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150380 | Balephuill Bay coastal sand and gravel | Groundwater | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150381 | Hynish and Gott Bay sand and gravel | Groundwater | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200086 | Coll and Tiree | Coastal | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200119 | Sea of the Hebrides | Coastal | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200505 | Atlantic Ocean – SW Mull | Coastal | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|------------------------|---|--|
| Ecology / Biodiversity | <p>Habitats</p> <p>The island supports a diverse range of habitats which in turn support a range of flora and fauna. Tiree is home to nationally and internationally important populations of breeding, wintering and passage birds - Monthly and Annual bird monitoring is undertaken on the island by a member of the RSPB.</p> <p>Grassland – machair, sliabh / Coastal / Freshwater / Farmland / Wetland</p> <p>Species</p> <p>The following species and habitats are identified within the Argyll and Bute Biodiversity Action Plan as being present on Tiree:</p> <ul style="list-style-type: none"> - barnacle goose, white footed goose, brown hare, corncrake, skylark, song thrush, otter, brown trout, dragonflies and damselflies, basking sharks, harbour porpoise and minke whale, cetaceans. -improved grassland, machair and dune, controlled waters, fens and reedbeds, flowing water, freshwater lochs, inshore sub-littoral sediment, sub-littoral sands and gravels <p>Designated Sites</p> <p>There are a number of EU and UK designated sites on Tiree, the key reason for the majority of these designations being down to the abundance of machair found on the island and the species it supports; 24% of the island's coverage is machair. Tiree machair and many of its associated species of flora and fauna are protected under European and UK legislation such as RAMSAR, SSSI, SAC and SPA. Machair is listed as a priority habitat in the EU Biodiversity Action Plan, the UK Biodiversity Action Plan and Argyll & Bute Council Local Biodiversity Action plan.</p> <p>Marine Protected Areas (MPA)</p> <p>The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include new powers and duties to designate Marine Protected Areas (MPAs) as part of a range of measures to manage and protect our seas for current and future generations. SNH and JNCC are currently reviewing potential MPAs and will be reporting to the</p> | <ul style="list-style-type: none"> • Liaison with A&BC, SNH, RSPB |

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|--|---|---|----------------|-----------------|----------|---------------------------------------|----------|--|----------|-----------------------|----------|--|----------|------------------------------------|----------|-------------------------------------|----------|--------------------------------|----------|-----------------------------|----------|--------------------------------|----------|--|
| | <p>Scottish Parliament by the end of 2012 - any future MPA designation in the waters around Tiree will be an important consideration for both the proposed Array and O&M requirements.</p> <p>Locally Designated Sites</p> <p>There are approximately 18 Local Nature Conservation Sites on Tiree as identified within the Argyll and Bute Local Plan (2009).</p> | | | | | | | | | | | | | | | | | | | | | | | |
| Cultural Heritage | <ul style="list-style-type: none"> Tiree has a rich history dating from around 9000 years ago that strongly influences the Island today. Tiree has played a key role in Scottish history due to its location at the centre of trading routes (Ireland, Outer Hebrides, Orkney, Norway) for the west coast economy. There are 12 Scheduled Ancient Monuments (SAM) located around the island, many of which are churches/ chapels. Of significance is the 1st century BC Dun Mor a' Chaolis broch and cup marked rock (prehistoric ringing stone). It is important that any potential onshore infrastructure takes into account the location and settling of SAMs on the island and in some circumstances scheduled ancient monument consent may be required. <table border="1" data-bbox="488 906 1451 1382"> <thead> <tr> <th data-bbox="488 906 1182 954">Scheduled Ancient Monument</th> <th data-bbox="1187 906 1451 954">Grid Reference</th> </tr> </thead> <tbody> <tr> <td data-bbox="488 954 1182 994">Kirkapol Church</td> <td data-bbox="1187 954 1451 994">NM042472</td> </tr> <tr> <td data-bbox="488 994 1182 1034">Kirkapol Chapel & cross-incised rocks</td> <td data-bbox="1187 994 1451 1034">NM042473</td> </tr> <tr> <td data-bbox="488 1034 1182 1074">Dun Mor a' Chaolais, broch & cup marked rock</td> <td data-bbox="1187 1034 1451 1074">NM083476</td> </tr> <tr> <td data-bbox="488 1074 1182 1114">Cill Choinnich Chapel</td> <td data-bbox="1187 1074 1451 1114">NL943447</td> </tr> <tr> <td data-bbox="488 1114 1182 1153">An Dun, dun, Eilean Dubh, Ceann a' Mhara</td> <td data-bbox="1187 1114 1451 1153">NL936411</td> </tr> <tr> <td data-bbox="488 1153 1182 1193">Dun nan Gall, fort, Ceann a' Mhara</td> <td data-bbox="1187 1153 1451 1193">NL935409</td> </tr> <tr> <td data-bbox="488 1193 1182 1233">St. Patricks Chapel, Ceann a' Mhara</td> <td data-bbox="1187 1193 1451 1233">NL937401</td> </tr> <tr> <td data-bbox="488 1233 1182 1273">Cill Fhinnein, Chapel, Kenovay</td> <td data-bbox="1187 1233 1451 1273">NL993467</td> </tr> <tr> <td data-bbox="488 1273 1182 1313">Balephetrish, marble Quarry</td> <td data-bbox="1187 1273 1451 1313">NM014473</td> </tr> <tr> <td data-bbox="488 1313 1182 1353">Balephetrish, limestone quarry</td> <td data-bbox="1187 1313 1451 1353">NM016470</td> </tr> </tbody> </table> | Scheduled Ancient Monument | Grid Reference | Kirkapol Church | NM042472 | Kirkapol Chapel & cross-incised rocks | NM042473 | Dun Mor a' Chaolais, broch & cup marked rock | NM083476 | Cill Choinnich Chapel | NL943447 | An Dun, dun, Eilean Dubh, Ceann a' Mhara | NL936411 | Dun nan Gall, fort, Ceann a' Mhara | NL935409 | St. Patricks Chapel, Ceann a' Mhara | NL937401 | Cill Fhinnein, Chapel, Kenovay | NL993467 | Balephetrish, marble Quarry | NM014473 | Balephetrish, limestone quarry | NM016470 | <ul style="list-style-type: none"> Prior agreement with Argyll and Bute Council to determine appropriate design for new buildings and infrastructure Liaison with Historic Scotland and AB&C. Gather advice with regard to any potential Scheduled Ancient Monument consent required. |
| Scheduled Ancient Monument | Grid Reference | | | | | | | | | | | | | | | | | | | | | | | |
| Kirkapol Church | NM042472 | | | | | | | | | | | | | | | | | | | | | | | |
| Kirkapol Chapel & cross-incised rocks | NM042473 | | | | | | | | | | | | | | | | | | | | | | | |
| Dun Mor a' Chaolais, broch & cup marked rock | NM083476 | | | | | | | | | | | | | | | | | | | | | | | |
| Cill Choinnich Chapel | NL943447 | | | | | | | | | | | | | | | | | | | | | | | |
| An Dun, dun, Eilean Dubh, Ceann a' Mhara | NL936411 | | | | | | | | | | | | | | | | | | | | | | | |
| Dun nan Gall, fort, Ceann a' Mhara | NL935409 | | | | | | | | | | | | | | | | | | | | | | | |
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| Cill Fhinnein, Chapel, Kenovay | NL993467 | | | | | | | | | | | | | | | | | | | | | | | |
| Balephetrish, marble Quarry | NM014473 | | | | | | | | | | | | | | | | | | | | | | | |
| Balephetrish, limestone quarry | NM016470 | | | | | | | | | | | | | | | | | | | | | | | |

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| | <table border="1" data-bbox="488 357 1451 517"> <tr> <td data-bbox="488 357 1182 400">Balephuill Bay, kelp kilns</td> <td data-bbox="1182 357 1451 400">NL939403</td> </tr> <tr> <td data-bbox="488 400 1182 472">Cladh Sorobaidh, burial ground, site of church & two crosses</td> <td data-bbox="1182 400 1451 472">NL983416</td> </tr> <tr> <td data-bbox="488 472 1182 517">Eilean na Ba, fort, Ceann a' Mhara</td> <td data-bbox="1182 472 1451 517">NL933400</td> </tr> </table> <ul data-bbox="488 523 1547 1070" style="list-style-type: none"> • Heritage influences all aspects of the islands place quality including landscape, language, land management and communities. • There are 58 listed buildings on Tiree; 17 are Category A, 38 are Category B and 3 are Category C listed. Category A-listed buildings are of the most cultural significance, these are as follows: <ul data-bbox="521 699 1547 895" style="list-style-type: none"> – Hynish, Harbour and Lighthouse establishment – signal tower, harbour, 1 Upper Square, 2 Upper Square, 3 Upper Square, 4 Upper Square, 1 & 2 Lower Square. 3 & 6 Lower Square, 4 & 5 Lower Square, stores, reservoir, store, coal store, dock and pier – all individually listed. – 3 Kilmoluaig – 13 Kilmoluaig • Hynish – Between 1837 - 40, Alan Stevenson used Hynish Harbour and facilities for the construction and servicing and maintenance of Skerryvore Lighthouse which is located off the coast of Tiree. Today some of the remaining harbour buildings are used as a museum. • Skerryvore Lighthouse is a Category A Listed Building | Balephuill Bay, kelp kilns | NL939403 | Cladh Sorobaidh, burial ground, site of church & two crosses | NL983416 | Eilean na Ba, fort, Ceann a' Mhara | NL933400 | |
| Balephuill Bay, kelp kilns | NL939403 | | | | | | | |
| Cladh Sorobaidh, burial ground, site of church & two crosses | NL983416 | | | | | | | |
| Eilean na Ba, fort, Ceann a' Mhara | NL933400 | | | | | | | |
| Landscape & Visual | <ul data-bbox="488 1091 1547 1390" style="list-style-type: none"> • Tiree benefits from a high quality environment and natural resources. In recognition of the special qualities, large areas of the island are protected by statutory designations. • Tiree is therefore internationally recognised for its flora (including machair) and fauna (particularly bird interest) and beaches. • The topography of Tiree is very flat. There are several small hills, the tallest of which is Ben Hynish which stands at 141m. • The majority of buildings on the island are 1 or 1.5 storeys tall, therefore do not have any significant impact on the views to, from or across the island. The fact that there are very few trees on the island means that there is no screening from one area to the | <ul data-bbox="1570 1123 2045 1358" style="list-style-type: none"> • Further assessment of O&M requirements and potential impacts on Tiree • Design Statement. • Landscape Strategy • Adherence to Best Practice building and landscape design | | | | | | |

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| | <p>next.</p> <ul style="list-style-type: none"> • There is a community wind turbine (Tilley) on the eastern side of the island which is visible from most areas of Tiree. The turbine is 75m in height to blade tip. • ‘Dark sky’ environment – i.e. lack of light pollution | |
| Community Effects | <ul style="list-style-type: none"> • The Gaelic culture and language, the way of life, the pace of life, architecture, crofting, the scenery and the people themselves. These are all factors that combine to make Tiree what it is - a special living historical and environmentally important landscape that supports an isolated and proud community. <ul style="list-style-type: none"> – Strong music, poetry, story-telling and dance – Community spirit events – Island stewardship and self sufficiency – Culture and Gaelic language – International Watersports – World class beaches – Seafaring heritage • Access and Recreation – Core Paths, Access to beaches etc | <ul style="list-style-type: none"> • Liaison with Tiree Community Development Trust and A&BC as part of O&M planning |
| Noise & Vibration | <ul style="list-style-type: none"> • There is very little existing noise on the island other than from the airport (1/2 flights per day) and the ferry pier (1 sailing per day). All other noise occurs as a result of vehicles, farm workings and environmental noise such as animals and the sea/wind. | <ul style="list-style-type: none"> • Noise, from helicopter flights and potential for increased fixed wing flights to/from Tiree should be routed to minimise flying over residential areas. • Construction method and programme. • Adherence to agreed assessment methodology and mitigation with A&BC • Transport Assessment will inform assessment of potential operational |

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|----------------------------|--|--|
| | | impacts. |
| Air Quality | <ul style="list-style-type: none"> • Due to the fact that very little industrial and commercial activity takes place on Tiree, air quality levels are of a high standard. • Currently the only activities that generate NO₂ / SO₂ emissions are the daily/twice daily flight the daily ferry sailing and low levels of traffic, all of which have a minimal effect on the local air quality. | <ul style="list-style-type: none"> • Construction undertaken to agreed programme to avoid impacts. • Adherence to agreed assessment requirements and mitigation in liaison with A&BC Environmental Health and Planning Department. |
| Waste and Waste Management | <ul style="list-style-type: none"> • Existing landfill site at Gott Bay | <ul style="list-style-type: none"> • Construction undertaken to agreed programme to avoid impacts. • Provide recycling facilities • Educate visitors and workforce on waste hierarchy and importance of recycling |
| Traffic & Transport | <p>The island is reached via air or sea.</p> <ul style="list-style-type: none"> • There is a ferry from Oban - daily during summer, 3 / 4 per week during winter • A daily flight from Glasgow • A flight from Oban – not daily • Traffic levels on the island are low – private cars, some farm vehicles, cyclists. Levels of traffic do rise during the summer months due to the number of tourists visiting the island. • The main public transport service is provided by the Council in the form of a Council owned accessible bus operated on a 'ring and ride' service • In addition to this there are school journeys throughout the island at school times operated by two buses, each by a different contractor. These journeys are timetabled and the information freely available. Some fare paying passengers do also make use of these journeys. | <ul style="list-style-type: none"> • Appropriate planning of O&M would minimise traffic issues e.g. peak travel to/from O&M base • Road maintenance key issue • Traffic management as required. |