

CHAPTER 11: TERRESTRIAL ECOLOGY

11. TERRESTRIAL ECOLOGY

11.1 Introduction

This chapter, which has been prepared by Waterman Infrastructure & Environment Limited (WIE) presents an assessment of the likely significant effects of the proposed development on the terrestrial ecological and nature conservation resources on, and in proximity to, the development. In doing so, it gives particular consideration to potential effects on protected and notable species and habitats.

The chapter provides a summary of relevant legislation, planning policies and guidance, together with a description of the methods used in the assessment. This is followed by a description of the relevant baseline conditions on the site and surrounding area and an assessment of the likely significant effects of the development during construction works and once completed and operational. Mitigation and enhancement measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified, together with the nature and significance of likely residual effects.

The chapter is based upon the findings of several ecological surveys undertaken at the site. A Preliminary Ecological Assessment (undertaken in April 2014) and subsequent National Vegetation Classification (NVC) survey (July 2014), breeding bird survey (August 2014) an otter *Lutra lutra* survey (November 2014) and a wintering bird survey (September 2014 to April 2015 inclusive) will be discussed. The results of the surveys are presented in ES Appendices 11-A: Preliminary Ecological Assessment 2014 to ES Appendix 11-E: Wintering Bird Survey Winter 2014-2015 inclusive and are referenced in the chapter where relevant.

The habitats and species evaluations are based on the guidance produced by the Chartered Institute of Ecology and Environmental Management (CIEEM), July 2006 (the 'IEEM Guidelines').

11.2 Legislation, Planning Policy and Guidance

This section outlines the policy, legislation and guidance that are relevant to terrestrial ecology. Policy, legislation and guidance applicable to the wider project can be found in Chapter 4: Planning and Legislation.

11.2.1 Legislation

Specific habitats and species of relevance to the site receive legal protection in the UK under various pieces of legislation, including:

- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Protection of Wild Mammals (Scotland) Act 2002;
- Nature Conservation (Scotland) Act 2004 (as amended), setting out the Scottish Biodiversity List (originally 2005, updated 2010, SBL);
- Nature Conservation: Implementation in Scotland of the Habitats and Birds Directives: Scottish Executive Circular 6/1995 as amended (June 2000) and The Conservation of Habitats and Species Regulations 2010 (as amended) (the "Habitats Regulations");

- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE); and
- The Protection of Badgers Act 1992¹.

Where relevant, this appraisal takes account of the legislative protection afforded to specific habitats and species.

11.2.2 Planning Policy

11.2.2.1 National

The Scottish Government's Planning Policies are set out in several documents, including the National Planning Framework and the Scottish Planning Policy (SPP).

The Scottish Planning Policy (Consolidated 2010) provides a statement of the Scottish Government's policy on nationally important land use planning matters. Specific relevant policies within this document include:

- Policy 207 – *“Sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) make up the Natura 2000 network of protected areas. Any development plan or proposal likely to have a significant effect on these sites which is not directly connected with or necessary to their conservation management must be subject to an “appropriate assessment” of the implications for the conservation objectives. Such plans or proposals may only be approved if the competent authority has ascertained by means of an “appropriate assessment” that there will be no adverse effect on the integrity of the site.”*
- Policy 208 – *“A derogation is available for authorities to approve plans or projects which could adversely affect the integrity of a Natura site if:*
 - there are no alternative solutions;
 - there are imperative reasons of overriding public interest, including those of a social or economic nature; and
 - compensatory measures are provided to ensure that the overall coherence of the Natura network is protected.
- Policy 212 – *“Development that affects a National Park, National Scenic Area, Site of Special Scientific Interest or a National Nature Reserve should only be permitted where:*
 - *the objectives of designation and the overall integrity of the area will not be compromised;*
or
 - *any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.”*
- Policy 214 – *“The presence (or potential presence) of a legally protected species is an important consideration in decisions on planning applications. If there is evidence to suggest that a protected species is present on site or may be affected by a proposed development, steps must be taken to establish their presence. The level of protection afforded by legislation must be factored into the planning and design of the development and any impacts must be fully considered prior to the determination of the application. Certain activities – for example those*

involving European Protected Species² as specified in the Conservation (Natural Habitats, &c.) Regulations 1994 and wild birds, protected animals and plants under the Wildlife and Countryside Act 1981 – may only be undertaken under licence. Following the introduction of the Wildlife and Natural Environment (Scotland) Act 2011, Scottish Natural Heritage is now responsible for the majority of wildlife licensing in Scotland.

- *Policy 215 – “In areas of wild land (wild land character is displayed in some of Scotland's remoter upland, mountain and coastal areas, which are very sensitive to any form of intrusive human activity and have little or no capacity to accept new development), development may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.”*

11.2.2.2 Local

Aberdeen City Council (ACC) adopted its first Local Development Plan (LDP) ³ in February 2012. The Aberdeen Local Development Plan (ALDP) (2012) replaced the Aberdeen Local Plan (2008) and was the first development plan of its kind in Scotland. The LDP is a vital public document which shapes the future of Aberdeen, and influences significant public and private investment in homes, businesses, shops, infrastructure and facilities.

ACC have written an environmental report⁴ for the ALDP under the Environmental Assessment (Scotland) Act 2005, as part of its Strategic Environmental Assessment (SEA). The reason for undertaking SEA is to address all the effects that a plan, program or strategy will have on the environment. The overall aim of the process is to protect the environment.

The following mitigation measures for biodiversity, flora and fauna have been recommended within the environmental report:

- *“All of the Natural Environment and Open Space policies provide protection to biodiversity and developments that may have significant impacts on biodiversity are required to strictly comply with these policies;*
- *Where policies that support development have a negative effect on biodiversity they will be overridden by the natural environment and open space policies;*
- *Those proposals with significant impacts on biodiversity have been removed from the plan and are only alternatives;*
- *Where the assessment has identified a natural heritage designation, these areas of sites have been identified as green space network to provide protection;*
- *In view of the potential significant impacts on biodiversity, developers will be required to undertake EIA prior to commencing some developments. EIA would address issues such as creation of wildlife corridors, habitat management and green space network. Where green field land is allocated, consideration will be given to improving housing densities. An “appropriate assessment” will be carried out where development projects are likely to cause a significant impact on the River Dee SAC and its qualifying species;*

- *A Habitats Regulation Assessment has been undertaken to ensure that the risk to the conservation status of the River Dee SAC has been minimised, and policies are included in the plan to ensure that development does not affect the River Dee's status. A Habitats Regulation Assessment will be required for developments in close proximity to the River Dee;*
- *New developments should compensate for any biodiversity loss and advocating high quality green infrastructure within master planning and working with the grain of nature should also ensure that biodiversity is considered and incorporated in developments; and*
- *Developments in close proximity to designated sites should have an appropriate buffer zone to ensure that they do not affect these important wildlife habitats."*

Statute requires that development plans are reviewed every five years, and so the adopted Local Development Plan is already under review. A 'Main Issues' paper was issued in January 2014, which includes Aberdeen Harbour Expansion as a Main Issue (number 7, para, 6.3), identifying Nigg Bay as the preferred location.

The Aberdeen City and Shire Strategic Development Plan was published in April 2014. One of the Plan's targets is: *'To make sure that development improves and does not lead to the loss of, or damage to, built, natural or cultural heritage assets'*. To achieve this target, *'both councils will take account of biodiversity, wildlife habitats, landscape, green networks and other sensitive areas in identifying land for development, preparing masterplans and assessing development proposals'*.

One of the Plan's proposals is:

'Improving the port and associated facilities at Aberdeen and Peterhead to make the most of their opportunities and potential, particularly for the energy (including off shore wind) and fishing sectors'.

The Green Space Network (as discussed in Policy NE1 of the ALDP) is a strategic network connecting various habitats and species, urban and rural green spaces to each other and the communities around them. It offers a wide range of social, health economic and environmental benefits.

Policy NE1 explains the purpose of the network and how it will be protected and enhanced through the planning process. The network has been identified to protect and enhance designated natural heritage sites; to improve connectivity between habitats and open spaces; and to promote opportunities for physical activity and access to the outdoors. It also takes into account climate change adaptation opportunities and flood risk or alleviation, the distribution of existing open spaces and their relationship with communities, development opportunities, health and deprivation information and transport issues.

11.2.3 UK Post-2010 Biodiversity Framework

The Environment Departments of all four governments in the UK work together through the Four Countries Biodiversity Group. Together, they have agreed, and Ministers have signed, a framework of priorities for UK-level work for the Convention of Biological Diversity. Published on 17 July 2012, the 'UK Post-2010 Biodiversity Framework'⁵ covers the period from 2011 to 2020. This now supersedes the UK Biodiversity Action Plan (BAP)⁶. However, many of the tools developed under the UK BAP remain of use, for example, background information about the lists of priority habitats and species.

The lists of priority species and habitats agreed under UK BAP still apply for the basis of much biodiversity work within the countries.

Although the UK Post-2010 Biodiversity Framework does not confer any statutory legal protection, in practice, many of the species listed already receive statutory legal protection under UK and/or European legislation. In addition, all of the priority UK BAP habitats and species found in Scotland are now listed on the Scottish Biodiversity List which was published in 2005 and updated in 2010 to satisfy the requirement under Section 2(4) of The Nature Conservation (Scotland) Act 2004 (as amended). For the purpose of this report, habitats and species listed on the Scottish Biodiversity List are referred to as having superseded the UK BAP. The Nature Conservation (Scotland) Act 2004 (as amended) places a duty on every public body to further the conservation of biodiversity by having particular regard to those species and habitats listed on the Scottish Biodiversity List.

The Scottish Biodiversity List supports the Scottish Biodiversity Strategy. The Scottish Government designates the two strategy documents together as comprising the Scottish Biodiversity: '2020 Challenge for Scotland's Biodiversity'⁷ and 'Scotland's Biodiversity: It's in Your Hands'.⁸

The 2020 Challenge document focuses on the desired (SNH) outcomes for 2020 and is Scotland's response to the European Biodiversity Strategy for 2020. It shows how the Scottish Government, its public agencies, Scottish business and others can contribute to the Strategy's aims as well as supporting sustainable economic growth.

'Scotland's Biodiversity: It's in Your Hands', was published in 2004 and sets out how the government will conserve biodiversity for the health, enjoyment and wellbeing of the people of Scotland now and in the future. The strategy set out a vision for 2030 as well as objectives and desired outcomes leading us there. These are still valid.

11.2.4 Local Biodiversity Action Plan

Local authorities in the UK have produced individual Local Biodiversity Action Plans (LBAPs). Despite the changes these are still used locally to highlight species and habitats of local note or importance. These action plans work at a local level to conserve and enhance national priorities identified in the UK BAP. The site is covered by the Scottish Biodiversity List (SBL) and North East Scotland Local Biodiversity Action Plan (NELBAP).

11.3 Assessment Methodology and Significance Criteria

11.3.1 Assessment Methodology

This section outlines the methodology used to assess the ecological baseline conditions of the site and to place the site in its wider ecological context. The assessment of the impacts of the development on valued ecological resources within the Zone of Influence (Zoi) (see Figure 1 in ES Appendix 11-A: Preliminary Ecological Assessment 2014) of the scheme has been based on the CIEEM Guidelines. The Zoi was used as the boundary for the survey area; the Zoi will be referred to as the survey area from this point on.

The assessment methodology comprised the following key stages:

- Consultation with statutory agencies, including Scottish Natural Heritage (SNH) and Aberdeen City Council;
 - EIA Scoping (July 2013 (ES Appendix 1-C: Scoping Report 2014), revised in July 2014 (ES Appendix 1-D: Scoping Opinion 2014));
 - Consultation with SNH (March 2014); and
 - Consultation with SNH (September 2014) following submission of the PEA and recommendations.
- Completion of a Preliminary Ecological Assessment incorporating an 'Extended' Phase 1 Habitat Survey and protected species risk assessment in April 2014 (refer to ES Appendix 11-A: Preliminary Ecological Assessment 2014). The assessment included data searches for ecological records and information which were undertaken to determine whether there were any ecological features or species likely to be affected by the development. The study area employed to undertake the assessment (defined as the area within 2 km of the centre of the site) is shown in Figure 1 of ES Appendix 11-A. An external assessment of buildings within the site was undertaken as part of the Preliminary Ecological Assessment. The nature conservation sources consulted as part of the data search comprised:
 - North-east Scotland Biological Records Centre (NESBReC);
 - Multi-Agency Geographic Information Centre⁹; and
 - Scottish Natural Heritage (SNH) Sitelink¹⁰
- Completion of a National Vegetation Classification (NVC) survey in June 2014 (ES Appendix 11-B);
- Completion of Breeding Bird Surveys between April and July 2014 (ES Appendix 11-C);
- Completion of an Otter Survey in November 2014 (ES Appendix 11-D); and
- Completion of a Wintering Bird Survey (September 2014 to April 2015) (ES Appendix 11-E).

Site survey methodologies are presented in full within ES Appendix 11-A: Preliminary Ecological Assessment 2014 to ES Appendix 11-E: Wintering Bird Survey Winter 2014-2015. All surveys were undertaken in accordance with best practice guidelines and at optimal times of year where possible.

The above baseline information has informed the following:

- Evaluation of the ecological value of the site and the immediate surrounding area;
- Assessment of the direct and indirect effects of the development during construction and once completed and operational; and
- Identification of required mitigation where necessary and enhancement opportunities and evaluation of residual effects.

11.3.2 Identifying the Zone of Influence

It was considered that the potential terrestrial ecological impacts of the development would be confined to the site, and that such a survey area would be sufficient to inform the Preliminary Ecological Assessment. Targeted species surveys considered the wider environment (see specific

survey areas in ES Appendices (11-C: Breeding Bird Surveys 2014, 11-D: Otter Survey November 2014 and 11-E: Wintering Bird Survey Winter 2014-2015) to account for suitable habitat adjacent to the site and the potential for targeted survey species/species groups to use these habitats.

11.3.3 Evaluation of Ecological Resources

The evaluation of terrestrial ecological features was undertaken in accordance with the CIEEM (2006) 'Guidelines for Ecological Impact Assessment' (the '2006 IEEM guidelines'). These guidelines aim to provide consistency in the approach to evaluating the importance of ecological resources and any effect that a new development could have upon them.

The assessment and determination of the value of the aquatic habitats, the faunal communities and the component species was undertaken following the guidelines presented in the IEEM (2010) 'Guidelines for Ecological Impact Assessment in Britain and Ireland – Marine and Coastal' (the '2010 IEEM guidelines'). This approach assigns value to features, habitats and species in terms of biodiversity and ecosystem services; social and community; and economic considerations.

The level of value of specific ecological receptors is assigned using a geographic frame of reference using the following terms:

- International;
- National (i.e. Scotland);
- Regional (i.e. north-east Scotland);
- County value (i.e. Aberdeenshire);
- District value;
- Local or Parish;
- Within the boundary of the Application Site only; and
- Negligible value.

11.3.4 Significance Criteria

According to the 2006 and 2010 IEEM (now CIEEM) guidance, an ecologically significant effect is defined as an effect (adverse negligible or beneficial) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative impacts.

The level of significance of the effect is a function of the value of the ecological resource, the magnitude and the nature of the effect. Potential and residual effects are shown in Table 11.1 whilst significance criteria are shown in Table 11.2.

The following factors are considered in determining ecological impacts:

- The extent of the effect;
- The magnitude of the effect;
- The duration of the effect (temporary, medium or long term);
- The nature of the effect (direct or indirect, reversible or irreversible);
- The timing and frequency of the effect;
- Cumulative effects; and
- The sensitivity of the ecological receptor.

In accordance with Chapter 5: Environmental Impact Assessment Process, the potential and residual impacts of the development upon identified ecological features are expressed in Table 11.1.

Table 11.1: Potential and residual impacts

Potential Impact	Description of Criteria
Adverse	Detrimental or negative impact on a valued ecological receptor.
Negligible	No significant impact upon a valued ecological receptor.
Beneficial	Advantageous or positive impact upon a valued ecological receptor.

Where adverse or beneficial impacts have been identified, these are then assessed against the scale shown in Table 11.2.

Table 11.2: Significance criteria for ecological assessment

Significance Criteria	Description of Criteria
Major significance	Effect of a magnitude likely to cause a permanent effect on the integrity or conservation status of an ecological resource of value at regional, national or international level.
Moderate significance	Effect of a magnitude likely to cause a permanent effect on the integrity or conservation status of an ecological resource of value up to the County/ Metropolitan level.
Minor significance	Effect of a magnitude likely to cause a temporary effect to an ecological resource of value at the district, local and/or site only level, but there would be no permanent effect on its integrity or conservation status.
Insignificant	No significant change to existing nature conservation/ecological value would arise from the development.

In accordance with the IEEM Guidelines, where activities associated with a development could result in the intentional killing or injury of protected species, this is stated and a level of significance is not given. This is because such killing or injury must be avoided by law. For other activities that could lead to an offence but may be permissible under license or agreement with a Government body, the significance of the impact is assessed according to the significance criteria described previously.

11.3.5 Consultation with Statutory Agencies

- EIA Scoping: July 2013, ES Appendix 1-C: Scoping Report 2013; January 2014, ES Appendix 1-D: Scoping Opinion 2014; April 2014, ES Appendix 1-E: Updated Scoping Report 2014;
 - SNH response
 - Requested that potential displacements of protected species and birds to be considered in the EIA;
 - Welcomes precautionary approach. Advised that NESBReC would be a useful source of information;
 - Advised that appropriate survey measures for birds should be used on both marine and terrestrial habitats. SNH provided initial advice on methodology; and
 - Recommended that a Phase 1 survey with relevant target notes should be undertaken with NVC as required. Any rare or nationally scarce higher and/or lower plant species within the survey area should be identified and any necessary mitigation described.
 - RSPB response
 - Would like birds to be described in more detail to ensure ornithology surveys adequately cover the study area;
 - Highlighted eider as a species of concern – up to 1500 present below the foghorn particularly in late summer and autumn when moulting;
 - Identified Nigg Bay as a regular roost for passage and wintering waders, gulls and terns. There is an occasional sand martin colony and other breeding birds along the beach that should be taken into consideration during construction;
 - Identified Greyhope Bay (outside of the development area) as a concern. Although fewer in number, eider roost offshore. It is also a regular onshore roost for Sandwich terns, oystercatchers, purple sandpiper and other waders; and
 - Would expect mitigation to be considered and strongly recommended that options for compensatory or enhancement measures also be explored.
 - Aberdeen City Council (ACC) response
 - Raised concerns over the presence of Sea Pea; and
 - Concerned over potential impacts upon designated Sites – in particular, the potential loss of habitat within the Balnagask to Cove LNCS.
- Consultation with SNH (March 2014);
 - Pleased to see that the 12 month survey data would be bolstered with existing datasets but requested that the boundaries for the WEBS data was checked to see how geographical representative the data was;
 - Made no comment on the proposed scope of the terrestrial bird surveys;
 - Requested that the Phase 1 Habitat Survey includes a National Vegetation Classification (NVC) survey of semi-natural areas;
 - Identified the need to undertake a specific bat survey was considered to be unnecessary, but as the species group had been discussed during the initial scoping phase, it was concluded that it would be necessary to undertake a Phase 1 Habitat Survey early on to establish its requirement or not; and
 - Requested that the Phase 1 Habitat survey would form the basis of a subsequent request to SNH to agree the scope/extent of more specialised terrestrial surveys.
- Consultation with SNH (September 2014) following submission of the PEA and recommendations;

- The range of surveys and methods followed were deemed appropriate. The NVC survey in Annex 2 wasn't provided, but Waterman's consultation letter provided a summary of its findings, which was deemed to be sufficient at that stage. SNH were pleased to see that opportunities to increase the biodiversity value of the site were being considered;
- SNH were not aware of the presence of *Carex maritima* at the site. It was recommended that the record is confirmed with David Welch at the Centre for Ecology and Hydrology;
- SNH were pleased that the final design will take cognisance of the habitats supporting plants of botanical interest; sea pea (*Lathyrus japonicus*) and oyster plant (*Mertensia maritima*), but recommend other forms of mitigation for these species are considered if this is not feasible; and
- The potential effect of displacement of protected animal species and birds should be considered in the EIA. Also, the potential for harm to their resting places and any licences that may consequently be required.

Each of the points above have been considered and addressed in this chapter. Contact with the Centre for Ecology and Hydrology to confirm the location of *Carex maritima* will be undertaken at the detailed design stage, once the recommended surveys are complete and the location of the species has been identified.

11.4 Baseline Conditions

11.4.1 Site Context

The terrestrial habitat on the site extends along a narrow section of land along the coastline around Nigg Bay. The rocky headlands of Girdle Ness at the north of the site lead into Nigg Bay, which is dominated by a pebbled shore and gorse scrub to the north and coastal heathland to the south. Neutral grassland is present on the headland at Greg Ness. South of Greg Ness the site boundary narrows and moves inland bordering Greyhope Road and the railway line. The railway runs through a steep cutting bordered by neutral grassland and scrub vegetation. The southern part of the site is bordered by semi-improved neutral grassland used for grazing livestock.

11.4.2 Statutory and Non-statutory Designated Sites

11.4.2.1 Statutory Designated Sites (Relevant to Site)

Special Areas of Conservation (SACs) are designated under the EC Habitats Directive. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are designated under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

In Scotland, Sites of Special Scientific Interest (SSSIs) are those areas of land and water (to the seaward limits of local authority areas) that Scottish Natural Heritage (SNH) considers to best represent the natural heritage of the nation; its diversity of plants, animals and habitats, rocks and landforms, or a combinations of such natural features. SSSI is a statutory designation made by Scottish Natural Heritage under the Nature Conservation (Scotland) Act 2004.

There are two statutory protected sites located within 2 km of the site: Nigg Bay SSSI lies within the site and the River Dee SAC is located approximately 500 m to the north of the site. There are no

Special Protected Areas (SPAs) or Ramsar sites within 2 km of the site and hence these have not been considered further in the assessment.

The location of local statutory sites is shown in Figure 11.1. Records of statutory designated sites within 2 km of the site were provided by NESBReC and are listed in Table 11.3.

Table 11.3: Statutory designated sites within 2 km of the site

Site Name	SNH Site Reference	Designation	Approximate Distance from Site [km]	Description/Citation
Nigg Bay	1224	SSSI	Within site	Nigg Bay is designated as a SSSI for geological reasons. It is a classic locality for Quaternary stratigraphy in north-east Scotland, illustrating several of the characteristic glacial deposits of the area.
River Dee Corridor	8357	SAC	0.5 km north	<p>A clean, fast flowing river supporting a diverse range of plants and animals, including otter. Strips of semi-natural grassland and water margin vegetation are present. Patches of willow and alder.</p> <p>The River Dee SAC is of international importance for populations of Atlantic salmon <i>Salmo salar</i>, freshwater pearl mussel <i>Margaritifera margaritifera</i> and European otter <i>Lutra lutra</i>.</p> <p>Also designated as a Local Nature Conservation Site (LNCS).</p>

11.4.2.2 Non-Statutory Designated Sites

Local Nature Conservation Sites (LNCSs) are non-statutory designations granted by local authorities to areas considered to be of local importance for wildlife. Many LNCSs are identified and proposed by local conservation organisations, following surveys of local authority areas. Local authorities assess proposed sites and decide whether to adopt them as LNCSs in their planning documents.

LNCS is the term of use as recommended by Scottish Planning Policy and SNH. It is used in place of the many different local names such as Regionally Important Geological Sites (RIGSs) and Local Wildlife Sites (LWSs).

There are five non-statutory protected sites located within 2 km of the site: these are designated as Local Nature Conservation Sites by the local authority ACC.

The location of local non-statutory sites is shown in Figure 11.2. Records of non-statutory designated sites within 2 km of the site were provided by NESBReC and are provided in Table 11.4.

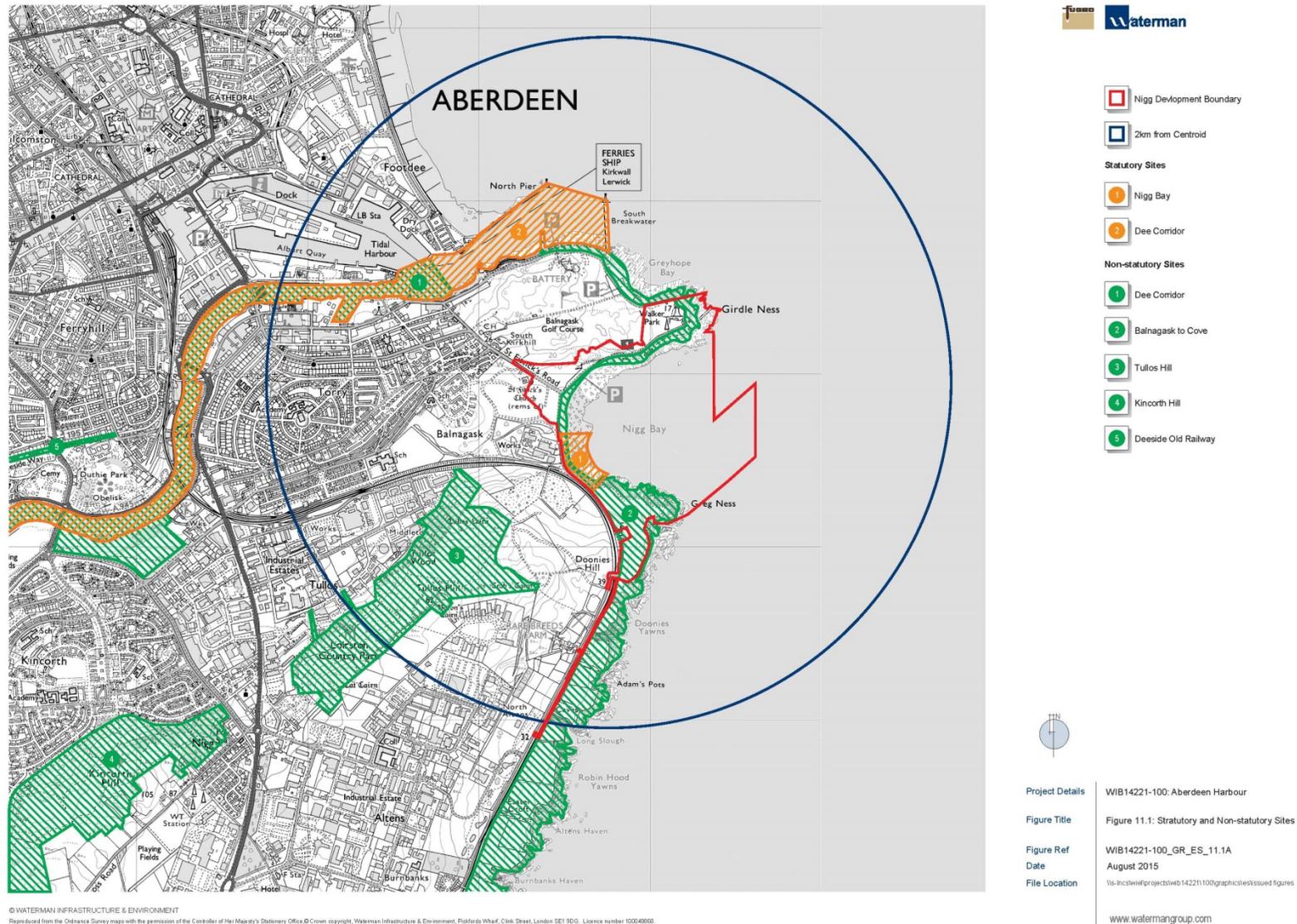


Figure 11.1: Statutory and non-statutory sites

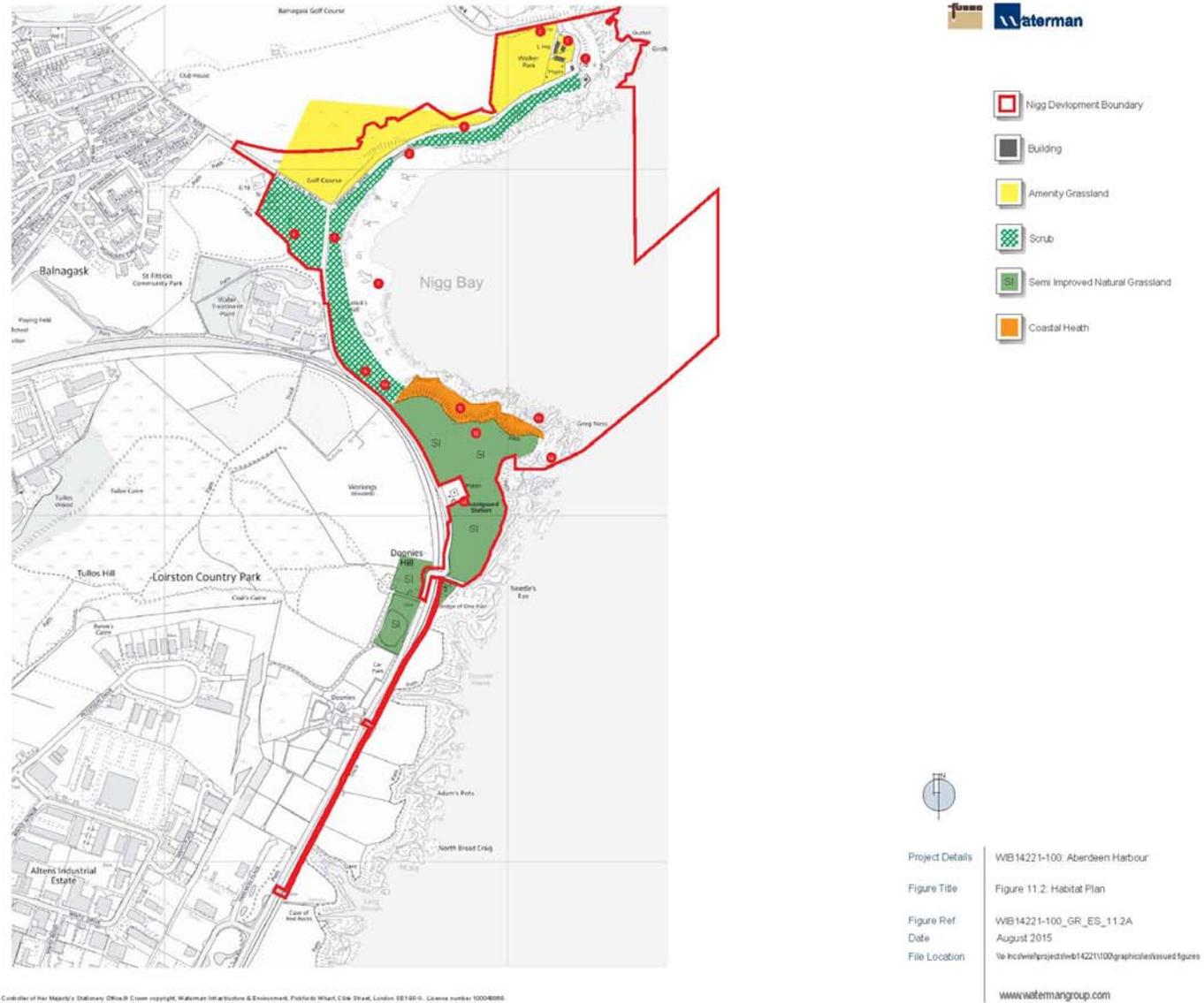


Figure 11.2: Habitat plan

Table 11.4: Non-statutory designated sites within 2 km of the site

Site Name	Designation	Approximate Distance from Site [km]	Description/Citation
Balnagask to Cove	Aberdeen City LNCS	Extends along the coastline within site boundary	Mixed habitats, on a rich substrate supporting herb rich grasslands, wet flushes, coastal heathland, rocky cliffs and rock pools. Interesting insect fauna and nesting sea birds. Geologically interesting.
Tullos Hill	Aberdeen City LNCS	Approximately 250 m west	Mixture of broadleaved woodland, rank neutral grassland, scrub woodland, bracken, acid grassland and dry heath. Some small patches of lowland birch woodland and wet heath. A good example of heathland close to the city.
River Dee Corridor	Aberdeen City LNCS	Approximately 500 m north	A clean, fast flowing river supporting a diverse range of plants and animals. Strips of semi-natural grassland and water margin vegetation are present. Patches of willow and alder. Also an SAC.
Kincorth Hill	Aberdeen City LNCS	Approximately 2 km west	Forms part of The Grampians and is one of the largest remaining areas of semi-natural vegetation in the district. Mainly scrub woodland, neutral grassland and dry heath with some small areas of woodland and patches of bracken.
Deeside Old Railway	Aberdeen City LNCS	Approximately 2 km west	The banks of this former railway line are a mixture of grassland, tall ruderal, small pockets of woodland, scattered trees and shrubs. A valuable green corridor in the west of the city.

11.4.3 Site Summary

The full findings of a Preliminary Ecological Assessment are reported in ES Appendix 11-A: Preliminary Ecological Assessment 2104. A summary is provided within this Chapter, which should be read in conjunction with the habitat plan provided as Figure 1 within ES Appendix 11-A.

11.4.3.1 Terrestrial Habitats

The habitat on site extends along a narrow section of land along the coastline around Nigg Bay. The rocky headlands of Girdle Ness at the north of the site lead into Nigg Bay, which is dominated by a pebbled shore and gorse scrub to the north and coastal heathland to the south of the Bay. Neutral grassland is present on the headland at Greg Ness. South of Greg Ness the site boundary narrows and moves inland bordering Greyhope Road and the railway line. The railway runs through a steep cutting bordered by neutral grassland and scrub vegetation. The southern section of the site is bordered by semi-improved neutral grassland used for grazing livestock. A plan showing the location of these terrestrial habitat types is presented in Figure 1 of ES Appendix 11-A: Preliminary Ecological Assessment 2014, with findings of the NVC survey shown in ES Appendix 11-B: National Vegetation Classification (NVC) Survey 2014.

The Aberdeen Greenspace Network is of social and ecological value to Aberdeen. Policy NE1 of the ALDP discusses the protection and enhancement of the Network. St Fittick's Park and the East Tullos

Burn Project form part of the Greenspace Network. In line with the ALDP, potential impacts and mitigation are discussed in terms of protecting this locally valuable Network. More detailed descriptions of habitats within the site are discussed in the following paragraphs.

11.4.3.2 Scrub

Dense areas of coastal scrub dominated by gorse *Ulex europaeus* are scattered along the northern areas of Nigg Bay on the stabilised sand dunes. Further inland, the gorse is surrounded by rank grass, willow *Salix* spp. and broom *Cytisus scoparius*. A further significant area of scrub habitat was recorded in an area west of Nigg Bay with the ground flora dominated by rank grasses, bramble *Rubus fruticosus*, and rosebay willow-herb *Epilobium angustifolium* and bordered on the road side edge by a scattered hawthorn *Crataegus monogyna* hedge. Trees (including ash *Fraxinus excelsior*) have been planted within the area of scrub.

This habitat is readily used by a combination of common and rare migrant passerines in spring and autumn. Given the assemblage of birds that use this habitat, it is considered to be of **local** value.

11.4.3.3 Semi-improved Neutral Grassland

The site supports areas of herb rich neutral grasslands on the cliff tops and along sections of the verges bordering Greyhope Road, which extends throughout the site along the western boundary. These areas of herb rich neutral grasslands situated along the coast are considered to be of **local** value given the LNCS designation.

11.4.3.4 Dry Dwarf Shrub Heath

European dry heath predominates in areas along the coastline to the south of Greg Ness. The habitat is dominated by heath species, with cross-leaved heath *Erica tetralix* being the major component. This habitat is considered to be of **local** value given the LNCS designation.

11.4.3.5 Shingle/Gravel Above High-tide Mark

The beach at Nigg Bay consists of coarse fine sands, with significant areas of large cobbles and pebbles. Both Greg and Girdle Ness are rocky with patches of pebbles and cobbles and a sandy foreshore. This habitat continues to the south with a rocky shore with patches of pebbles and cobbles and a sandy foreshore. This area is considered to have a low species diversity and given the frequency of this habitat in the area is considered of ecological value **within the boundary of the Application Site only**.

11.4.3.6 Boulders/Rocks Above High-tide Mark

Rocks and boulders at Girdle Ness and Greg Ness headlands that remain exposed above the high-tide line have lichens such as the yellow *Xanthoria* species. This area is considered to have a low species diversity and given the frequency of this habitat in the area is considered of ecological value **within the boundary of the Application Site only**.

11.4.3.7 Strandline Vegetation

Areas of hard-standing overgrown by strandline vegetation occupy a narrow high-tide zone along the upper edges of the stony and rocky beaches at the south of Nigg Bay: here the vegetation is a weedy

mix of species such as silverweed *Argentina anserina*, sea sandwort *Honckenya peploides*, bramble and rosebay willow-herb. Strandline habitat is listed on the UK Biodiversity Action Plan (UK BAP) and the Scottish Biodiversity List (SBL). The habitat provides opportunities to invertebrates and feeding birds. However, given the coastal location of the Site, the habitat is common in the wider area. With low species diversity, the habitat is considered of ecological value **within the boundary of the Application Site only**.

11.4.3.8 Maritime Hard Cliff

The coastline south of Nigg Bay consists of rocky cliffs comprised of metamorphic rock with minimal vegetation coverage. Colonies of seabirds were nesting on these rocky cliffs within sheltered coves at the time of the survey (April 2014). The habitat is listed as a UK BAP and Scottish Biodiversity List priority habitat and as such, is considered to be of ecological significance at the **regional** level.

11.4.3.9 Coastal Heathland

The coastal heathland is located adjacent to the coast but inland from the zone of sea spray influence. This habitat is composed of heather *Calluna vulgaris* and bell heather *Erica cinerea*, with abundant sea plantain *Plantago maritime* and white clover *Trifolium repens*. This habitat is considered to be of **local** ecological value given the LNCS designation.

11.4.3.10 Amenity Grassland

Two significant areas of amenity grassland are located within the boundary of the site. Walker Park borders the northern boundary of the site, whilst a disused section of the golf course lies on the north-western boundary of the site. These are large areas of regularly mown, amenity grassland dominated by perennial ryegrass *Lolium perenne* and dense patches of white clover with areas of curled dock *Rumex crispus* and common hogweed *Heracleum sphondylium* along some field boundaries. This area is considered to have a low species diversity is considered to be of ecological value **within the boundary of the Application Site only**.

11.4.3.11 Wall

A stone wall extends around the amenity grassland on Walker Park and continues around the lighthouse buildings and along large extents of Greyhope Road which runs from north to south along the western boundary of the site. The stones within the wall have white, grey and yellow species of lichens. This habitat is considered to be of **negligible** value.

11.4.3.12 Fence

Iron fencing is present along the sea wall (north-west boundary of Nigg Bay) and around the carpark (western area of Nigg Bay (see Figure 1 of ES Appendix 11-A: Preliminary Ecological Assessment 2014). The habitat is also present along the coastal edge of the road to the north of Nigg Bay. The habitat is considered to have **negligible** ecological value.

11.4.3.13 Sea Wall

A reinforced concrete sea wall has been constructed along the north-westerly edge of Nigg Bay. This habitat is considered to have **negligible** ecological value.

11.4.3.14 Buildings

Several structures are located within the boundary of the site, these include the lighthouse buildings at Girdle Ness and an active water pumping station consisting of a stone two-storey building, with grated windows, located below the lighthouse. These were not accessed during the survey.

The Coastguard Station is a single-storey metal structure located behind a high metal fence on the headland at Greg Ness. There was no access to the Coastguard Station, but due to its structure it was not considered to have roosting bat potential.

There are also remains of the exterior walls of two ruined single-storey stone buildings, located along the northern shorefront of Nigg Bay within the site boundary. No evidence of roosting bats or nesting birds was identified in these structures during the survey, and they are not considered to have significant potential to support these species.

On the northern edge of the Site in Walker Park, there is a small single-storey stone structure which has been extensively vandalised and with only small parts of the roof remaining. Two bird nests were identified within the remains of the roof, but due to the exposed nature of the remains, it is considered to have no potential to support roosting bats. In addition, the site is close to the roofless remains of St Fittick's Church to the western, with only the stone walls remaining intact. No evidence of roosting bats or nesting birds were identified within the structure during the survey, and given the exposed nature of the existing structure, it is not considered to have significant potential to support these species.

Nigg Waste Treatment Plant contains a series of commercial buildings and is located outside of the site and immediately adjacent to the western development boundary. Doonies Rare Breeds Farm is located on the western boundary of the site and contains a series of corrugated metal buildings. No evidence of roosting bats or nesting birds were identified within these structures during the survey, and they are not considered to have significant potential to support these species.

The findings of the survey indicate that none of the accessible buildings have potential to support roosting bats, and no bird nests were identified using the structures at the time of the survey (with the exception of the small single-storey building, located within Walker Park, where two bird nests were recorded within the partially collapsed roof). Therefore, the buildings are considered to be of ecological value **within the boundary of the Application Site only**.

11.4.3.15 Protected, BAP and Other Notable Species

Breeding Birds

The habitats on site are considered to offer a range of opportunities for breeding terrestrial and marine bird species. Although the site lacks trees, there are areas of dense and scattered scrub which provide foraging and sheltering opportunities and these habitats are locally valued for birds. The intertidal zones provide valuable feeding opportunities for birds in the area. The cliff fronts within sheltered coves at the south of the site are considered particularly important, with colonies of sea birds nesting and sheltering on these at the time of the walkover survey undertaken as part of the Preliminary Ecological Assessment (see ES Appendix 11-A: Preliminary Ecological Assessment 2014). As such, targeted breeding bird surveys were undertaken.

A total of 60 species was recorded during the breeding bird surveys (ES Appendix 11- C: Breeding Bird Surveys 2014), of which six are included within either Annex 1 of the Birds Directive or within Schedule 1 Part 1 of the Wildlife and Countryside Act 1981, thus are afforded maximum protection under either European or national legislation:

- Red-throated diver *Gavia stellata* is included within both Annex 1 and Schedule 1;
- Short-eared owl *Asio flammeus*, common tern *Sterna hurindo* and sandwich tern *Thalasseus sandvicensis* are included within Annex 1; and
- Purple sandpiper *Calidris maritima* and common scoter *Melanitta nigra* are included within Schedule 1.

Thirteen of the species recorded are included as Priority Species on the UKBAP, and therefore also appear on the Scottish Biodiversity List:

- Starling *Sturnus vulgaris*;
- House sparrow *Passer domesticus*;
- Yellowhammer *Emberiza citrinella*;
- Grasshopper warbler *Locustella naevia*;
- Linnet *Carduelis cannabina*;
- Skylark *Alauda arvensis*;
- Dunnock *Prunella modularis*;
- Reed bunting *Emberiza schoeniclus*;
- Herring gull *Larus argentatus*;
- Song thrush *Turdus philomelos*;
- Curlew *Numenius arquata*;
- Lapwing *Vanellus vanellus*; and
- Common scoter.

A further eight species are included on the Scottish Biodiversity List:

- Sandwich tern;
- Common tern;
- Short-eared owl;
- Red-throated diver;
- Purple sandpiper;
- Kestrel *Falco tinnunculus*;
- Black-headed gull *Larus ridibundus*;
- Swift *Apus apus*.

Ten of the species recorded have suffered severe medium to long term declines in UK numbers and have been placed on the Red List of the Birds of Conservation Concern (BoCC):

- Starling;
- House sparrow;
- Yellowhammer;
- Grasshopper warbler;
- Linnet;
- Skylark;
- Song thrush;
- Herring gull;
- Lapwing; and
- Common scoter.

Thirty-two of the species recorded have suffered moderate medium to long term declines in UK numbers have been placed on the Amber List of the BoCC:

- Curlew;
- Redshank *Tringa totanus*;
- Kittiwake *Rissa tridactyla*;
- Fulmar *Fulmarus glacialis*;
- Swift;
- Meadow Pipit *Anthus pratensis*;
- Willow warbler *Phylloscopus trochilus*;
- Dunnock;
- Reed bunting;
- Common whitethroat *Sylvia communis*;
- Purple sandpiper;
- Ringed plover *Charadrius hiaticula*;
- Shag *Phalacrocorax aristotelis*;
- Eider *Somateria mollissima*;
- Great black-backed gull *Larus maritimus*;
- Oystercatcher *Haematopus ostralegus*;
- Common tern;
- Razorbill *Alca torda*;
- Guillemot *Cephus grille*;

- Gannet *Morus bassanus*;
- Lesser black-backed gull *Larus fuscus graellsii*;
- Sandwich tern;
- Mallard *Anas platyrhynchos*;
- Turnstone *Arenaria interpres*;
- Common gull *Larus canus*;
- Red-throated diver;
- Short-eared owl;
- Kestrel;
- Sand martin *Riparia riparia*;
- Barn swallow *Hirundo rustica*; and
- Northern wheatear *Oenanthe oenanthe*.

The remaining 18 species recorded are considered to have no conservation concern and are not covered in the above legislation; therefore appear only on the Green List of the BoCC:

- Blackbird *Turdus merula*;
- Blue tit *Cyanistes caeruleus*;
- Buzzard *Buteo buteo*;
- Carrion crow *Corvus corone*;
- Chaffinch *Fringilla coelebs*;
- Feral pigeon *Columba livia 'feral'*;
- Goldfinch *Carduelis*;
- Greenfinch *Carduelis chloris*;
- Grey heron *Ardea cinerea*;
- Jackdaw *Corvus monedula*;
- Magpie *Pica pica*;
- Pied wagtail *Motacilla alba yarrellii*;
- Robin *Erithacus rubecula*;
- Rock pipit *Anthus petrosus*;
- Sedge warbler *Acrocephalus schoenobaenus*;
- Stonechat *Saxicola rubicola*;
- Wood pigeon *Columba palumbus*; and
- Wren *Troglodytes troglodytes*.

Although 42 of the recorded species are afforded extra legal protection through their inclusion within Annex 1 or Schedule 1 or are included on the UKBAP or listed as Red or Amber Birds of Conservation Concern, none of the sightings constitutes unusual or unexpected records locally, with many of the species being common, and widespread passage birds or breeding birds along the Aberdeenshire coast. Much of the nationwide fall in breeding numbers for many of the Red and Amber listed species is not mirrored in Scotland, where ideal habitat and conditions persist. As a result, there is no local or regional concern over the status of their breeding numbers within the survey area, or therefore over their conservation status. None of the Schedule 1 species recorded on site were breeding on site: such species occurred as summer, passage or winter migrants. Schedule 1 only protects such species at the nest/breeding sites.

Therefore, any significant impact through development is considered highly unlikely. As a result, the area is considered to be of **local** value for breeding birds.

Wintering Birds

As noted above, the site is considered to offer a range of opportunities for wintering terrestrial and marine bird species. Consequently, targeted wintering bird surveys were undertaken (ES Appendix 11-E: Wintering Bird Survey Winter 2014-2015).

A total of 12 species was recorded during the wintering bird surveys, of which one is included within Annex 1 of the Birds Directive, and thus is afforded maximum protection under either European legislation:

- Red-throated diver;

One of the recorded species appears on Schedule 1 Part 2 of the Wildlife and Countryside Act 1981, and is protected by special penalties during the close season which is 1 February to 31 August (21 February to 31 August below high water mark) but which may be killed or taken outside this period:

- Goldeneye *Bucephala clangula*.

One of the species recorded is included as Priority Species on the UKBAP, and therefore also appears on the Scottish Biodiversity List:

- Herring gull.

A further two species are included on the Scottish Biodiversity List:

- Red-throated diver;
- Black-headed gull.

One of the species recorded (herring gull) has been placed on the Red List of the BoCC, whilst ten species recorded are currently on the Amber List of the BoCC (kittiwake, shag, eider, great black-backed gull, black-headed gull, razorbill, guillemot, common gull, goldeneye and red-throated diver) and a single species (cormorant) is of no conservation concern and is listed on the Green List of BoCC.

Although 11 of the recorded species are afforded extra legal protection through their inclusion within Annex 1 or are included on the UKBAP or listed as Red or Amber Birds of Conservation Concern, none of the sightings constitutes unusual or unexpected records locally, with many of the species being common and widespread overwintering birds along the Aberdeenshire coast. As a result, there is no local or regional concern over the status of their wintering numbers within the survey area, or therefore over their conservation status.

Therefore, any significant impact through development is considered highly unlikely. As a result, the area is considered to be of **local** value for wintering birds.

Migrant Birds

Through consultation with ACC, it is clear that the scrub habitat within the Site is of local value for migrant passerines. The publication 'Birding in North East Scotland'¹¹ records observations of common and rare migrants including Bluethroat *Luscinia svecica*, Yellow-browed Warbler *Phylloscopus inornatus* Richard's Pipit *Anthus richardi*, Icterine Warbler *Hippolais icterina*, Barred Warbler *Sylvia nisoria*, Common Rosefinch *Carpodacus erythrinus*, Lapland Bunting *Calcaeus lapponicus* and Ortolan Bunting *Emberiza hortulana*.

Given the presence of common and rare migrants in spring and autumn, the area (mainly scrub habitat there-in) is considered to be of **local** value of migrant species.

Bats

No targeted bat surveys have been undertaken but, where possible, a roost potential assessment of structures within the site boundary was undertaken as part of the Preliminary Ecological Assessment (ES Appendix 11-A: Preliminary Ecological Assessment 2014). No roosts or potential roosts were recorded, and the desk study returned few records of bat, so the opportunities for roosting bats within the site is considered **negligible**. The lighthouse and pumping station did not receive assessment due to a lack of access. These buildings will not be directly impacted by the proposed development, but it is acknowledged that the proposed construction zone will be located adjacent to both buildings. Opportunities for foraging and commuting bats are considered to be of **negligible** value.

Otter

No evidence of otter was identified during the site visit undertaken as part of the Preliminary Ecological Assessment (ES Appendix 11-A: Preliminary Ecological Assessment 2014). However, the site lies approximately 500 m to the south of the River Dee SAC, of which otter is a primary reason for designation. Given the location of the SAC and the presence of suitable otter habitat within the site, a targeted otter survey was undertaken in November 2014 (ES Appendix 11-D: Otter Survey November 2014).

The otter survey employed a combination of walkover and Vantage Point studies to assess for presence of the species within the site. No sightings of the species were made and no holts or couches were identified, but spraints (6) and feeding remains were recorded. The site is frequented by dog walkers and recreational walkers reducing the likelihood of otter finding shelter within the site. However, the results of the targeted survey show that otter use the site for feeding and commuting. It

was noted that the spraints were old suggesting that otter do not use this area continuously. As such, the value of the site to otter is considered to be **within the boundary of the Application Site only**.

Reptiles

Habitat within the site (rough grassland, heath and scrub) has limited potential to support common reptiles, such as slow worm and common lizard. In addition, the data search produced no records for reptiles for the immediate area and none were observed during the Phase I walkover undertaken as part of the Preliminary Ecological Assessment (ES Appendix 11-A: Preliminary Ecological Assessment 2014). Given the presence of suitable habitat within the Site, the value of the Site to reptiles is considered to be **within the boundary of the Application Site only**.

Invertebrates

The habitats on site provide a range of opportunities for invertebrates. Grassland, heath and scrub provides a mosaic habitat for invertebrates considered to be of value **within the boundary of the Application Site only**.

Flora

The habitats on site are home to many species of value within the site.

In addition, curved sedge *Carex maritima*, Sea pea *Lathyrus japonicus* and oyster plant *Mertensia maritima* were identified within the Site. Curved sedge is an International Union for Conservation of Nature (IUCN) Endangered species, a Nationally Scarce species and is listed as a priority species on the UK Biodiversity Action Plan (BAP) and on the Scottish Biodiversity List as a species of principal importance for biodiversity conservation. Sea pea is classified as Nationally Scarce and listed on the Scottish Biodiversity List as a species of principal importance for biodiversity conservation. Oyster plant is not listed on the UKBAP or SBL but is listed on the LBAP and is considered to be Nationally Scarce.

Previous work undertaken by Envirocentre in 2013 and communication with the vice biological recorder of Kincardineshire suggested that the sea pea colony within the site is possibly reducing in size (fewer plants found during more recent surveys). Locations of oyster plant and sea pea were provided (Envirocentre, 2013) as were buffer zones for both species.

The flora present within the Site is generally composed of commonly occurring species and is considered to be of value **within the boundary of the Application Site only**. However, curved sedge, sea pea and oyster plant are considered to be of **national** importance.

Other Notable/Protected species

No evidence of, or potential for other protected terrestrial species were identified within the site. Given the habitats available it is not expected further groups of protected or notable species would be encountered on the site. Consequently, the ecological value of habitats within the site to other protected or notable terrestrial species is considered to be **within the site only**. It is considered unlikely that badgers, water voles, great crested newts or white clawed crayfish would be affected by the proposed development due to lack of suitable habitat within or immediately adjacent to the site.

11.5 Assessment of Effects

11.5.1 Construction

This section of the assessment considers the effects of the construction works on designated sites, habitats and species.

During the construction phase of the development, and in the absence of any mitigation measures, a number of activities are likely to occur that could adversely affect habitats and species present, as listed below:

- Ground preparation works such as tracking, ground level modification and drainage installation;
- Clearance of scrub resulting in permanent habitat loss;
- Habitat fragmentation/degradation;
- Increased human activity resulting in disturbance;
- Construction associated activity, including noise, lighting, hazardous materials and traffic;
- Pollutants, which may include dust, mud, runoff of suspended solids, fuel oils, transmission fluids, concrete liquor, chemicals, and litter;
- Loss of breeding bird habitat;
- Disturbance to otter (feeding areas and commuting routes); and
- Disturbance and damage to habitats adjacent to work areas.

11.5.1.1 Statutory Designated Sites

The nearest statutory designated site is Nigg Bay SSSI which is located within the site. The SSSI is designated for geological reasons and is therefore not considered further in this chapter (refer instead to Chapter 9: Ground Conditions and Contamination).

The River Dee SAC is located approximately 500 m to the north of the site and is designated for otter, Atlantic salmon *Salmo salar* and freshwater pearl mussel *Margaritifera margaritifera*. It is not considered that the proposed development would have an impact upon the integrity of the SAC (in terms of otter as a qualifying feature). As such, the effect of the proposed construction works upon the River Dee SAC (in terms of otter as a qualifying feature) is considered to be **negligible**, which is not significant in EIA terms.

However, the proposed development has the potential to disrupt upstream and downstream migratory patterns of Atlantic salmon. Such impacts could cause adverse changes to the populations of Atlantic salmon and freshwater pearl mussel within the SAC. The freshwater pearl mussel has a parasitic stage in its lifecycle during which it infects the gills of juvenile Atlantic salmon (within the freshwater environment). Consequently, any impact upon the populations of Atlantic salmon returning to the river Dee could impact upon freshwater pearl mussel recruitment within the SAC. This chapter specifically assesses effects on terrestrial ecology and the River Dee SAC is a terrestrial (i.e. non-marine) designation. Refer to Chapter 13: Fish and Shellfish Ecology for an assessment of effects on Atlantic salmon and consequent possible effects on freshwater pearl mussel.

11.5.1.2 Non-statutory Designated Sites

The Balnagask to Cove Local Nature Conservation Site (LNCS) extends from the mouth of the River Dee to the north of the site, along the coastline within the site and south to Cove Bay. The LNCS is present along the coast in Nigg Bay and extends beyond Girdle Ness to the north and Greg Ness to the south. The proposed development will run along the shore boundary of the LNCS, encroaching at some points. The size of the LNCS compared to the area of habitat to be lost (and the value of said habitat) has been taken into consideration. The loss of habitat would be **permanent, minor adverse** at the **district** level.

The River Dee Corridor LNCS is located approximately 500 m to the north of the site. The proposed development is considered to be sufficiently distant from this LNCS that the potential effect of the proposed construction works would be **negligible**, which is not significant in EIA terms.

Tullos Hill LNCS is located 250 m to the west of the proposed development. Given this large distance coupled with a lack of connecting pathways to the proposed development, the potential effect of the proposed construction works would be **negligible**, which is not significant in EIA terms.

11.5.1.3 Terrestrial Habitats

Scrub

Areas of scrub habitat are found across the survey area. The proposed development would result in the loss of a large area of scrub habitat around the northern edge of Nigg Bay. The habitat is of limited ecological value (within the site only) offering foraging and sheltering opportunities for birds and invertebrates. The habitat is noted to be of local value to migrant passerines. Construction works are therefore considered to have a **permanent, minor adverse** effect at the **local** level, which is not significant in EIA terms.

Semi-Improved Neutral Grassland

The site supports areas of herb-rich neutral grasslands on the cliff tops and along sections of the verges bordering Greyhope Road, which extends throughout the site along the western boundary. Given the location of this habitat, it is considered that construction would have a **negligible** effect, which is not significant in EIA terms.

Dry Dwarf Shrub Heath

European dry heath predominates in areas along the coastline to the south of Greg Ness. The proposed construction would avoid this area and as such, it is considered likely that construction phase would result in a **negligible** effect, which is not significant in EIA terms.

Shingle/gravel Above High-tide Mark

The beach at Nigg Bay consists of coarse fine sands, with significant areas of large cobbles and pebbles. Both Greg and Girdle Ness are rocky with patches of pebbles and cobbles and a sandy foreshore. This habitat continues to the south with a rocky shore with patches of pebbles and cobbles and a sandy foreshore. Given the area of this habitat, within the site and beyond, construction works are considered to have a **negligible** effect, which is not significant in EIA terms.

Boulders/Rocks Above High-tide Mark

Rocks and boulders at Girdle Ness and Greg Ness headlands that remain exposed above the high-tide line have lichens such as the yellow *Xanthoria* species. This area is considered to have a low species diversity and given the frequency of this habitat in the area, within the site and beyond, construction works are considered to have a **negligible** effect, which is not significant in EIA terms.

Strandline Vegetation

Areas of hard standing overgrown by strandline vegetation occupy a narrow high-tide zone along the upper edges of the stony and rocky beaches at the south of Nigg Bay. Construction works would avoid this area and as such, are considered to have a **negligible** effect, which is not significant in EIA terms.

Maritime Hard Cliff

The coastline south of Nigg Bay consists of rocky cliffs comprised of metamorphic rock with minimal vegetation coverage, which are used by colonies of seabirds for nesting. Construction works would avoid this area and, as such, are considered to have a **negligible** effect, which is not significant in EIA terms.

Coastal Heathland

The coastal heathland is located adjacent to the coast but inland from the zone of sea spray influence. An access track which would be built to facilitate the southern breakwater would pass along the southern border of this habitat but none of this habitat would be lost. As such, it is considered that the construction phase would result in a **negligible** effect, which is not significant in EIA terms.

Amenity Grassland

Two significant areas of amenity grassland are located within the boundary of the site. Walker Park borders the northern boundary of the site, whilst a disused section of the golf course lies on the western boundary of the site. Both areas are regularly mown and possess limited diversity. It is proposed that both areas may be used for temporary working areas. It is considered likely that use of these areas as temporary working sites would result in **permanent, minor adverse** effect at the **site** level, which is not significant in EIA terms.

Wall

A stone wall extends around the amenity grassland on Walker Park and continues around the lighthouse buildings and along large extents of Greyhope Road which runs from north to south along the western boundary of the site. It is proposed that Walker Park and the disused golf course may be used as temporary working areas. It is considered likely that construction of the development would result in a **negligible** effect, which is not significant in EIA terms.

Fence

Iron fencing is present along the sea wall (north-west boundary of Nigg Bay) and around the carpark (western area of Nigg Bay (see Figure 1 in ES Appendix 11-A: Preliminary Ecological Assessment 2014)). The fence would be removed as part of the development. It is considered likely that construction of the development would result in a **negligible** effect, which is not significant in EIA terms.

Sea Wall

A reinforced concrete sea wall has been constructed along the north-westerly edge of Nigg Bay. The sea wall would be removed as part of the development but would be replaced by the new development. It is considered likely that construction of the development would result in a **negligible** effect, which is not significant in EIA terms.

Buildings

Several structures located within the boundary of the site (lighthouse buildings at Girdle Ness an active water pumping station, a Coastguard Station at Greg Ness and the remains of the exterior walls of two ruined single-storey stone buildings), along the boundary (a small single-storey structure at Walker Park and St Fittick's church) and outside the boundary (Nigg Waste Water Treatment Plant and Doonies Rare Breeds Farm), were surveyed (where access permitted) for nesting birds and roosting bats.

No buildings would be directly affected by the proposed development and as such, it is considered likely that construction of the development would result in **negligible** effects, which is not significant in EIA terms.

11.5.2 Protected and Notable Species

Breeding Birds

In the absence of mitigation, direct effects associated with the construction works, such as dust, noise, vibration, and lighting disturbance, have the potential to affect foraging and commuting species of breeding birds on the site and within the vicinity of the site. These effects would, however, be temporary during the construction phase.

It is considered likely that construction of the development would result in **temporary, minor adverse** effects at the **local** level on breeding birds, which is not significant in EIA terms.

Wintering Birds

Any construction is likely to disturb the seabed and involve an increase in human and ship activity which may lead to an increase in both visual and noise disturbance to the birds, or the displacement of the birds from their preferred loafing or foraging areas. However, as the majority of this bird activity is focused on birds loafing on the water, and construction works are likely to be limited to single areas within the bay, birds should be able to move to a quieter area within the bay.

It is considered likely that construction of the development would result in **temporary, minor adverse** effects at the **local** level on wintering birds, which is not significant in EIA terms.

Migrant Birds

The value of scrub to passage migrants, particularly passerines is considered of **local** value and the loss of the habitat is considered. It is considered likely that the loss of this habitat would result in **permanent, minor adverse** effect at the **local** level, which is not significant in EIA terms.

In the absence of mitigation, direct effects associated with the construction works, such as dust, noise, vibration, and lighting disturbance, have the potential to affect foraging and commuting species of wintering birds on the site and within the vicinity of the site. These effects would, however, be temporary during the construction phase.

It is considered likely that the disturbance caused by the construction of the development would result in **temporary, minor adverse** effects at the **local** level on migrant birds, which is not significant in EIA terms.

Bats

Based upon initial surveys, roosting potential within the Site is considered to be **negligible**, with foraging and commuting opportunities valued **within the boundary of the Application Site**. In addition, the desk study returned few records of bat. With no access granted, a potential roost survey of the Light house and pumping station could not be undertaken. As the proposed construction zone will be adjacent to both buildings, it is considered that associated disturbance could impact upon potential bat roosts. At present, it is considered likely that construction of the development would result in **negligible** effects on bat populations, which is not significant in EIA terms.

Otter

Disturbance in the form of increased noise, vibration, lighting and visual is likely to affect feeding and commuting otter within the site. Based upon the desk-based study and field surveys undertaken to date, it is considered that construction of the development would result in a **temporary, minor adverse** effect at the **site** level, which is not significant in EIA terms.

Reptiles

Habitat within the site has limited potential to support common reptiles. However, the data search produced no records for reptiles within 2 km of the site and none were observed during the Phase I walkover undertaken as part of the Preliminary Ecological Assessment (ES Appendix 11-A: Preliminary Ecological Assessment 2014). As such, it is considered likely that construction of the development would result in a **temporary, minor adverse** effect at the **site** level, which is not significant in EIA terms.

Invertebrates

The habitats on site provide a range of opportunities for invertebrates. The development would primarily result in the loss of scrub habitat which offers foraging and sheltering opportunities to invertebrates. Although there are alternative habitats present on-site providing opportunities to invertebrates, it is considered that construction of the development would result in a **temporary, minor adverse** effect at the **site** level, which is not significant in EIA terms.

Flora

Although diversity within the site is relatively low, it is considered that, excluding the nationally scarce species, construction of the development would result in a **permanent, minor adverse** effect at the **site** level upon flora, which is not significant in EIA terms.

However, it is noted that curved sedge, sea pea and oyster plant; three Nationally Scarce species (curved sedge and sea pea both listed on the SBL, oyster plant listed on the LBAP and curved sedge recognised as an IUCN Endangered species) are present within the site. From previous data provided by Envirocentre (2012/2013) the plants are located within land to be permanently affected by the proposed development. Based upon this data, it is considered that construction of the development would, in the absence of any mitigation measures, result in a **permanent, major adverse** effect at the **national** level, which is significant in EIA terms.

Other Notable/Protected species

No evidence of, or potential for, other protected terrestrial species was identified within the site. Given the habitats available it is not expected further groups of protected or notable species would be encountered on site. It is considered unlikely that badgers, water voles, great crested newts or white clawed crayfish would be affected by the proposed development due to lack of suitable habitat within or immediately adjacent to the site. Consequently, it is considered likely that construction of the development would result in **negligible** effects for such groups or species, which is not significant in EIA terms.

11.5.3 Completed Development

In the absence of mitigation, the operational phase of the development would result in the following potential changes at the site:

- Permanently increased levels of human activity;
- Permanently increased levels of marine activity;
- Harbour associated activity, including noise, lighting, use of hazardous materials/chemicals;
- Increased littering/fly-tipping;
- Increased traffic; and
- Increased levels of night time lighting that may impact patterns of animal use within adjacent habitats.

11.5.3.1 Statutory Designated Sites

The completed development would lie approximately 500 m to the south of the River Dee SAC. Due to the distance from the site, operation of the new harbour would not affect the integrity of the SAC in terms of the otter population. As such, the effect of the completed development upon the otter population of the SAC is considered to be **negligible**, which is not significant in EIA terms.

However, as previously discussed, this chapter specifically assesses effects on terrestrial ecology and the River Dee SAC is a terrestrial (i.e. non-marine) designation. Refer to Chapter 13: Fish and Shellfish Ecology for an assessment of effects on Atlantic salmon and consequent possible effects on freshwater pearl mussel.

11.5.3.2 Non-statutory Designated Sites

The River Dee Corridor LNCS is located approximately 500 m to the north of the site. Due to the distance from the site, the proposed development would not affect the LNCS. The effect of the

completed development upon the LNCS is therefore considered to be **negligible**, which is not significant in EIA terms.

The Balnagask to Cove LNCS extends along the coastline within the site. However, much of the LNCS lies out-with the site. The operational phase of the development is therefore considered to have a **permanent, minor adverse** effect at the **district** level, which is not significant in EIA terms.

11.5.3.3 Terrestrial Habitats

Scrub

Areas of scrub within the site are considered to be of limited ecological value (of within the site only) offering foraging and sheltering opportunities for birds and invertebrates. In the absence of mitigation or ecological enhancements, the effect is considered to be **permanent, minor adverse** at the **local** level, which is not significant in EIA terms.

Neutral Grassland

The site supports areas of herb-rich neutral grasslands on the cliff tops and along sections of the verges bordering Greyhope Road, which extends throughout out the site along the western boundary. In the absence of mitigation, the effect is considered to be **permanent, minor adverse** at **local** level, which is not significant in EIA terms.

Dry Dwarf Shrub Heath

European dry heath predominates in areas along the coastline to the south of Greg Ness. In the absence of mitigation, the likely effect of the operation of the proposed development is considered to be **permanent, minor adverse** at the **local** level, which is not significant in EIA terms.

Shingle/Gravel Above High-tide Mark

The beach at Nigg Bay consists of coarse and fine sands, with significant areas of large cobbles and pebbles. Both Greg and Girdle Ness are rocky with patches of pebbles and cobbles and a sandy foreshore. This habitat continues to the south with a rocky shore with patches of pebbles and cobbles and a sandy foreshore. In the absence of mitigation, the effect of the operation of the proposed development is considered to be **negligible**, which is not significant in EIA terms.

Boulders/Rocks Above High-tide Mark

Rocks and boulders at Girdle Ness and Greg Ness headlands that remain exposed above the high-tide line. This area is considered to have a low species diversity given the frequency of this habitat in the area. In the absence of mitigation, the effect of the operation of the proposed development is considered to be **negligible**, which is not significant in EIA terms.

Strandline Vegetation

Areas of hard-standing overgrown by strandline vegetation occupy a narrow high-tide zone along the upper edges of the stony and rocky beaches at the south of Nigg Bay. It is considered that in the absence of mitigation, the effect of the operation of the proposed development is considered to be **permanent, minor adverse** at the **site** level, which is not significant in EIA terms.

Maritime Hard Cliff

The coastline south of Nigg Bay consists of rocky cliffs comprised of metamorphic rock with minimal vegetation coverage. In the absence of mitigation, the effect of the operation of the proposed development is considered to be **negligible**, which is not significant in EIA terms.

Coastal Heathland

The coastal heathland is located adjacent to the coast but inland from the zone of sea spray influence. In the absence mitigation, the likely effect of the operation of the proposed development is considered to be **permanent, minor adverse** at the **site** level, which is not significant in EIA terms.

Amenity Grassland

Two significant areas of amenity grassland are located within the boundary of the site. Walker Park borders the northern boundary of the site, whilst a disused section of the golf course lies on the western boundary of the site. Both areas are regularly mown possessing limited diversity. It is proposed that both areas may be used for temporary working areas. In the absence mitigation, the likely effect of the operation of the proposed development is considered to be **permanent, minor adverse** effect at the **site** level, which is not significant in EIA terms.

Wall

A stone wall extends around the amenity grassland on Walker Park and continues around the lighthouse buildings and along large extents of Greyhope Road along the western boundary of the site. The effect of the operation of the proposed development on the ecological potential of the wall is considered to be **negligible**, which is not significant in EIA terms.

Fence

Iron fencing is present along the sea wall and around the carpark and extends along large extents of Greyhope road to the north of Nigg Bath of the site. The effect of the operation of the proposed development on the ecological potential of the wall is considered to be **negligible**, which is not significant in EIA terms.

Sea Wall

A reinforced concrete sea wall has been constructed along the north-westerly edge of Nigg Bay. The effect of the operation of the proposed development on the ecological potential of the sea wall is considered to be **negligible**, which is not significant in EIA terms.

Buildings

Several structures located within the boundary of the site were surveyed (where access permitted) for nesting birds and roosting bats. None of the accessible buildings (the lighthouse and pumping station could not be accessed at the time of survey) were considered to have potential to support roosting bats, and only two bird nests were identified in a single structure. In the absence mitigation, the likely effect of the operation of the proposed development is considered to be **negligible**, which is not significant in EIA terms.

11.5.4 Protected and Notable Species

Breeding Birds

Although there are extensive opportunities for nesting birds within the site, none of the sightings constitutes unusual or unexpected records locally, with many of the species being common and widespread breeding birds along the Aberdeen City and Shire coast.

It is considered likely that once operational, the local breeding bird population would become habituated to the harbour operations. Taking a precautionary approach, however, we consider that the operational phase of the development would, in the absence of mitigation, result in a **permanent, minor adverse** effect at the **local** level, which is not significant in EIA terms.

Wintering Birds

Although there are extensive opportunities for overwintering and passage migrant birds within the site, none of the sightings constitutes unusual or unexpected records locally, with many of the species being common and widespread overwintering birds or passage birds along the Aberdeenshire coast.

As above, passage and wintering birds would become habituated to the operational use of the new harbour. However, taking a precautionary approach, it is considered likely that the operational phase of the development would result in **permanent** effect of **minor adverse significance** at the **local** level, which is not significant in EIA terms.

Migrant Birds

Migrant/on-passage birds would become habituated to the operational use of the new harbour. However, taking a precautionary approach, it is considered likely that the operational phase of the development would result in **permanent** effect of **minor adverse significance** at the **local** level, which is not significant in EIA terms.

Bats

The completed development would have the potential to adversely affect bats due to light pollution influencing foraging patterns; however no bat roosts were found during the walkover survey and commuting opportunities with the site are limited. In the absence of mitigation measures, this impact is considered to be **negligible**, which is not significant in EIA terms.

Otter

Evidence of otter activity within the site has been recorded. With permanent use of the site, it is considered likely that otter may initially avoid the development. It is considered that otter will become habituated to operational use of the port (there is anecdotal evidence of otter recorded in daylight in the mouth of the Dee at the entrance to Aberdeen Harbour). However, taking a precautionary approach, in the absence of mitigation, it is considered likely that the completed development would have a **permanent, minor adverse** effect at the **site** level, which is not significant in EIA terms.

Reptiles

Habitat within the site has limited potential to support common reptiles. The data search produced no records for reptiles in the immediate area and none were observed during the Phase I walkover

undertaken as part of the Preliminary Ecological Assessment. It is considered likely that the completed development would have a **negligible** effect on reptiles, which is not significant in EIA terms.

Invertebrates

The habitats on the site currently provide a range of opportunities for invertebrates. However, as a result of the loss of suitable habitat for invertebrates during the construction phase, the operation of the completed development would result in a **negligible** effect on invertebrates, which is not significant in EIA terms.

Flora

Once the proposed development is operational, and in the absence of any mitigation measures, it is considered that effects to plant species and habitats during the operational phase would be **permanent, minor adverse** at **site** level, which is not significant in EIA terms.

With regard to the nationally scarce plant species within the site (sea pea, curved sedge and oyster plant), it is considered that the operational phase of the development would, in the absence of any mitigation measures, result in a **permanent, major adverse** effect at the **national** level, which is not significant in EIA terms.

Other Notable/Protected Species

No evidence of, or potential for other protected terrestrial species were identified within the site. Given the habitats available it is not expected further groups of protected or notable species would be encountered on the site. It is therefore considered that the potential effect of the operation of the proposed development upon species such as badger, water vole, great crested newt or white clawed crayfish would be **negligible**, which is not significant in EIA terms.

11.6 Mitigation Measures

11.6.1 Construction

11.6.1.1 General Site Environmental Management Procedures

A Draft Construction Environmental Management Plan (CEMP) is provided as part of this Environmental Statement. The final CEMP, to be developed at the detailed design stage, will include:

- Briefing of all contractors in relation to any on-site ecological sensitivities through a series of 'toolbox talks'. This would include emergency procedures and a briefing regarding exclusion zones and practices around the works areas, with clearly demarcated exclusion zones marked as appropriate; and
- Measures to be employed to prevent or mitigate potential impacts on the following ecological receptors:
 - River Dee SAC and LNCS (i.e. designated area of European importance approximately 500 m to the north of the proposed development);
 - Balnagask to Cove LNCS (within the site);
 - Nationally scarce plants (curved sedge, sea-pea and oyster plant);

- Nationally protected species (i.e. otters and breeding birds); and
- East Tullos Burn.

11.6.1.2 Pollution Prevention

All works would be undertaken in compliance with the Scottish Environment Protection Agency (SEPA) Pollution Prevention Guidelines (PPGs)¹² including:

- PPG1: General guide to the prevention of water pollution;
- PPG2: Above ground Oil Storage Tanks;
- PPG5: Works in, near or liable to affect watercourses;
- PPG6: Working at construction and demolition sites; and
- PPG21: Pollution incident response planning.

The developer would consult SEPA where appropriate and formulate an agreement on pollution and siltation prevention measures, strategies and emergency procedures for all phases of construction. This would involve the protection of water resources, including groundwater, by providing appropriate drainage, including surface water run-off, from construction works (Chapter 8: Flood Risk and Surface Water for further information).

Any oil and fuel storage would be located in a secure area on an impermeable base within an impermeable bund with no surface water outlet, in accordance with PPG2 (noted above). The bund would be capable of retaining at least 110% of the biggest tank's capacity or 25% of the total capacity, whichever is the greater. Valves and couplings connected to oil storage tanks would be located within the bund and delivery hoses would be fitted with trigger-type handles suspended back within the bund after use. Valves and trigger filler handles would be kept padlocked when not in use. Reasonable security measures would be in place to prevent vandalism.

Extreme caution would be taken to avoid spillages or leaks of fuel, with stocks of oil absorbent and containment materials retained on site. All contractors handling such containers would be trained to be familiar with the use of these materials and related emergency spillage containment procedures.

Temporary earth stockpiles created during site clearance, excavation and construction would be located at reasonable distances from any site drainage to prevent runoff of suspended solids into the storm-water system.

Dust containment and minimisation would be in place for materials with the potential to lead to wind-blown pollution. Concrete transfers and washouts would be carried out well away from any drainage. Liquid concrete and washout would be disposed of appropriately.

11.6.1.3 Terrestrial Habitats

It is recommended that a Habitat Creation and Management Plan (HCMP) is prepared to provide mitigation to the loss of habitats within the site. The HCMP would be incorporated into the CEMP.

The site boundary has been minimised for operational and security reasons and there will therefore be very few areas of the site that won't be developed. Where the loss of more valuable habitats (neutral grassland, dry dwarf shrub heath and coastal heathland) cannot be avoided, translocation of the seedbank should be considered (preferably to a suitable location of low value within or nearby the site and ideally connected to similar existing habitat within the site).

Since there are very few areas of the site that won't be developed, there are few opportunities for introducing areas of soft landscaping. Nevertheless, where areas of soft landscaping can be provided, these would provide some opportunity to mitigate for the loss of some habitat as well as creating new habitat. Soft landscaping may include species of tree, shrub and species-rich seed mixes of local provenance that have high nectar or berry resources. Such planting schemes would be beneficial to birds, including migrant passerines and invertebrate populations within the site.

Scrub habitat is of value to on-passage passerines and scrub species lost as part of the development should be considered for replacement. These strategies would be incorporated in the HCMP.

The HCMP and CEMP will include recommendations on soft landscaping of the development. Recommendations should include the re-instatement/creation of new habitats to improve the value of the local Greenspace Network habitat and build upon recently completed initiatives such as the East Tullos Burn Project which lies adjacent (to the south) of St Fittick's Park.

The proposed landscaping plan will be sympathetic to the value of the Greenspace Network and should consider opportunities to increase the ecological value of the habitat in terms of improved diversity (both in terms of planting and attracting faunal species to the area) as well as making the Greenspace Network (locally) a more robust amenity that can be used by local residents. Aberdeen Harbour Board (AHB) has a well-established Corporate Social Responsibility (CSR) programme. AHB will work Aberdeen City Council and other Greenspace Network partners when developing its future CSR initiatives, with the aim of supporting local projects that can deliver meaningful and appropriate benefits to local wildlife and conservation issues.

11.6.1.4 Protected and Notable Species

Bat

Although it is currently considered that the Site is of **negligible** value (to roosting bat) and is limited to **within the boundary of the Application Site** (foraging and commuting bat), two key buildings could not be accessed at the time of survey. With no agreed access, a bat roost potential assessment of the lighthouse and the pumping station could not be undertaken at the time of survey. The proposed plans (Figure 3.2 in the ES) show that the land acquired for the construction phase of the project lies adjacent to both the lighthouse and the pumping station (separate areas of land to be acquired). It is proposed that a 24 hour working regime will be employed during the construction phase which could result in the potential disturbance (noise, light, vibration, human presence) of any bat that are roosting within these structures. Although the value of the local habitat to bay is limited, bat are protected by European legislation. Prior to construction commencing, an external and internal survey of the lighthouse and an internal inspection of the pumping station will be carried out to assess for roosting bat. Given the lack of evidence (desk and field based), AHB will continue to consult with local bat groups about the requirement and potential further scope for bat surveys.

Otter

Otter activity was recorded within the site during the targeted survey (ES Appendix 11-D: Otter Survey November 2014) and the site lies approximately 500 m to the south of the River Dee SAC. Otter are a primary reason for designation of the SAC and use the river for feeding, shelter and breeding.

Following discussions with Aberdeen City Council (ACC), it is considered that additional information is required in regard to otter activity between the Site and the River Dee SAC, and over a similar distance from the Site southwards. AHB will liaise with Aberdeen City Council (ACC) and Scottish Natural Heritage (SNH) to agree the need and scope for further otter surveys during the detailed design process. In addition, an Otter Protection Plan will be included in the EMMP.

Consideration will be given to the timing of any additional survey work to ensure that it remains up-to-date at the time when the detailed design process is being developed.

It is recommended that site preparation and construction should follow the best practice measures below for use on sites where otter may pass through.

Appropriate best practice measures to take a due regard for the potential for otter to pass through the site during construction including:

- Soil materials stockpiled in the site for an extended period of time would be inspected weekly to ensure no mammal burrows are present;
- Construction compounds will be fenced off to which will help to prevent otter for entering them; and
- Proposed limited planting schemes as discussed in the HCMP, where appropriate may provide more cover for otter moving through the site, although given the nature of the proposals, the extent of additional planting will be necessarily limited.

Construction of the breakwaters will use large blocks of concrete laid in a manner that will increase the value of the site to otter. It is considered that the completed breakwaters will provide the following opportunity to otter:

- Gaps between the blocks will provide plentiful resting opportunities for otter beside a readily available food source;
- The breakwater is likely to act like an artificial reef, providing shelter to fish, crustacean and shellfish species, attracting them to the breakwater;
- Increased cover across the 'mouth' of Nigg Bay; and
- Increased commuting opportunities across the 'mouth' of Nigg Bay.

Breeding Birds

As a best practice measure, where possible the Site would be prepared (vegetation clearance) out-with the bird breeding season (i.e. clearance would be between August and late March) to avoid impact on breeding birds. A suitably qualified Environmental Clerk of Works (ECoW) should be present to ensure that no breeding is disrupted and the Wildlife and Countryside Act 1981 is adhered to. This may involve introducing certain mitigation measures or implementing temporary construction

procedures to avoid areas where nesting is in progress, where disturbance is particularly likely, or where bird activity is considered to be vulnerable.

During the construction phase of the development, it is recommended that a suitably qualified ECoW is available to undertake regular monitoring of the site, especially should works be carried out through the breeding period (April to July). Clearance work would proceed only after the area for clearance has been inspected by the ECoW to determine if any breeding birds or dependent young are present. If any are found then preparation of that area would have to be placed on hold until the birds have finished their breeding cycle, or appropriate protective measures (i.e. restriction of working within 25 m of active nests and or dependent young) be put in place to keep within the law.

The creation of an HCMP (discussed above) would mitigate against habitat loss, and provide feeding and nesting opportunities for breeding birds.

Wintering Birds

The creation of an HCMP (discussed above) would mitigate against habitat loss, and provide feeding and nesting opportunities for wintering birds.

Migrant Birds

The creation of an HCMP (discussed above) would mitigate against habitat loss, and provide resting and feeding opportunities for migrant birds.

Reptiles

Given the lack of evidence (desk and field based) of the presence of reptiles, AHB will continue to consult with local reptile groups about the requirement for any future reptile surveys.

The creation of an HCMP (discussed above) would mitigate against habitat loss, and provide increased shelter, feeding and breeding opportunities for reptile.

Invertebrates

The creation of an HCMP will coincidentally mitigate against habitat loss, and provide feeding and sheltering opportunities for invertebrates.

Flora

It is recommended that the working corridor for any works associated with the access roads be marked out with pegs at the earliest opportunity, and the areas then mapped to identify the location of curved sedge, oyster plant and sea pea. This would allow such nationally scarce species to be conserved.

The perimeter of the development area (including access tracks) within the site boundary would be delineated with fencing, and all contractors briefed that they may not track or operate out-with that fencing. This would ensure plant species and habitats are not affected unnecessarily.

There is no current data on the exact location(s) of curved sedge; the only information states that it was identified along the grassland areas sited among scattered scrub vegetation around Nigg Bay. However, the species would be expected to be located near to a source of freshwater (i.e. where the small burn comes into the bay). Through cross referencing of the buffer zones for sea pea and oyster plant (above) and the habitat in which the curved sedge is located (as identified in the Phase 1 walkover), with the design of the proposed development, it is likely that the species (based upon the 2013 data) are located within the land to be acquired on a permanent basis (see Figure 3.2), and would be directly affected by construction.

Given the lack of data available on the location(s) of curved sedge, and the dated information available on the location of oyster plant and sea pea within the Site, a targeted survey will be undertaken pre-construction to identify the location of all sea pea, oyster plant and curved sedge within the site. If the plants lie out-with the proposed development land, the location should be marked (including buffer zone) prior to site clearance. If the plants are recorded within the land of the proposed development, the location of these plants should be marked in preparation of translocation to suitable habitat elsewhere within the site. Post-translocation management and monitoring of these species would be undertaken as recommended in the HCMP.

11.6.2 Completed Development

An Ecological Management Strategy (EMS) which would adhere to AHB's existing Environmental Risk Assessments (ERAs), would be prepared for use once the proposed development is operational. The EMS would incorporate the mitigation measures set out below. Such mitigation measures would be the responsibility to the Applicant to manage.

11.6.2.1 Designated Sites

To maintain the Balnagask to Cove LNCS in positive conservation management would require a commitment to monitoring the site's condition, presence of litter, fly tipping, green waste etc. with a proactive and rapid response to resolving the issue. This may be achieved through factoring or through regular walkovers by local countryside rangers or biodiversity officers. It is recommended that long term impacts upon the LNCS are monitored with AHB owned sections of the LNCS.

11.6.2.2 Emissions to Air

Operation and Maintenance of Roads

Plant and equipment would be subject to routine preventative maintenance to preserve efficiency and minimise emissions. Staff and contractors involved in weed-spraying would be specially trained to use the chemicals in a way that minimises fugitive emissions.

Operation and Maintenance of Buildings

Plant and equipment (e.g. HVAC plant and boilers if relevant) would be subject to routine preventative maintenance to preserve efficiency and prevent leaks. Such works would be carried out by trained staff (or contractors) and records would be maintained. An asbestos register would be maintained, to prevent accidental disturbance and all staff trained in asbestos awareness. If works are required to areas containing asbestos, specific risk assessments and specially trained contractors would be employed.

Operation and Maintenance of Vehicles

Plant, Vehicles and Vessels (PVV) would be subject to routine preventative maintenance to preserve operating efficiency and reduce pollution. This work would be carried out by trained, competent personnel and records would be kept.

Storage of Engineering and Operational Supplies

Materials would be stored as per specifications in Material Safety Data Sheets (MSDSs) in appropriately designed containers (e.g. with tightly fitting lids) that would be subject to routine maintenance and inspection. Staff would be trained in the storage and handling requirements of such materials.

11.6.2.3 Emissions to Soil or Sediments

Operation and Maintenance of Roads

Where surface water drains do not drain to foul sewer, they would be fitted with interceptors/silt-traps as appropriate. These would be subject to routine maintenance and inspection and records of this would be kept. Stocks of absorbents would be maintained and staff trained to report and clean-up spills immediately.

Operation and Maintenance of Buildings

Where surface water and roof drains do not drain to foul sewer, they would be fitted with interceptors/silt-traps as appropriate. These would be subject to routine maintenance and inspection and records of this would be kept.

Operation and Maintenance of Vehicles

Staff would be trained in the specific measures needed during maintenance, cleaning and repainting of vessels or plant over water to collect wash-water and debris where this could contain harmful material.

Storage of Engineering and Operational Supplies

Materials would be stored as per specifications in MSDSs in appropriately designed containers (e.g. with tightly fitting lids) that would be subject to routine maintenance and inspection. Staff would be trained in the storage and handling requirements of such materials. A Spill Contingency Plan would be in place. Stocks of absorbents would be maintained and staff trained to report and clean-up spills immediately.

11.6.2.4 Emissions to Water

Operation and Maintenance of Roads

Where surface water drains do not drain to foul sewer, they would be fitted with interceptors/silt-traps and shut off valves as appropriate. These would be subject to routine maintenance and inspection and records of this would be kept. Dock Control Officers would patrol regularly, remaining vigilant for evidence of spills and a Spill Contingency Plan would be in place. Stocks of absorbents would be maintained and staff trained to report and clean-up spills immediately.

Operation and Maintenance of Buildings

Cleaning contractors would use non-persistent products where possible and would train staff to ensure these are appropriately disposed of per MSDSs (i.e. not down external drains, as well as being diluted and used so as to prevent wastage). Internal drains would be connected to the foul sewer network. Stocks of absorbents would be maintained and staff trained to report and clean-up spills immediately.

Operation and Maintenance of Vehicles

Staff would be trained in the specific need, during maintenance, cleaning and repainting of vessels or plant over water to collect wash-water and debris where this could contain harmful material. Vehicles would be washed in a purpose-built wash bay draining, via silt-trap and interceptor, to foul sewer. Specific training would be delivered to staff that carry out bunkering operations. A Spill Contingency Plan would be in place and all staff trained in the importance of immediately reporting pollution or the immediate threat of pollution. Stocks of absorbents would be maintained and staff trained to report and clean-up spills immediately.

Storage of Engineering and Operational Supplies

Materials would be stored as per specifications in MSDSs in appropriately designed containers (e.g. with tightly fitting lids) that would be subject to routine maintenance and inspection. Staff would be trained in the storage and handling requirements of such materials. These would be subject to routine maintenance and inspection and records of this would be kept. A Spill Contingency Plan would be in place. Stocks of absorbents would be maintained and staff trained to report and clean-up spills immediately.

11.6.2.5 Waste Management

Licensed Waste

Competent, licensed contractors would be used for the removal and disposal of Special Waste and records of this would be kept. All staff would receive training on waste that requires special treatment with specific training delivered to those staff handling harmful materials. Reception facilities for the most commonly generated special wastes would be kept at the Maintenance Depot.

General Waste

Competent, licensed contractors would be used for the removal and disposal of waste and records of this would be kept. All staff would receive training on waste disposal to ensure that the waste hierarchy is applied.

Facilities for recycling would be provided at all AHB buildings to minimise landfill, and containers for the most commonly generated hazardous wastes provided at the Maintenance Depot. Staff would be trained to ensure that control of waste would be retained at all times and to use the appropriate disposal option. Purpose-built waste vehicles would be provided/contracted for the collection and disposal of waste, which would be stored on secure sites in appropriately designed containers that would be subject to inspection and maintenance. If any excavations were to take place, pre-works testing would allow contaminated material to be identified and appropriate solutions for removal designed.

11.6.2.6 Terrestrial Habitats

Flora

Implementation of the CEMP, HCMP and maintenance of the surrounding habitats through the management of litter, fly tipping, green waste etc., as noted above with regards to designated sites, would help to protect areas containing valuable flora (e.g. curved sedge, oyster plant and sea pea).

11.7 Residual Effects

Table 11.5 summarises the potential effects of the construction and operational phases of the proposed development on relevant ecological receptors. Where appropriate, proposed mitigation measures are summarised and the resulting likely residual effect is provided.

Table 11.5: Summary of likely significant effects

Issue	Potential Effect	Mitigation or Enhancement Measures	Likely Residual Effect
Construction			
Direct/indirect impact upon the integrity of the River Dee SAC (otter)*	Negligible	None required	Negligible
Direct/indirect impact upon the integrity of the River Dee LNCS	Negligible	None required	Negligible
Direct/indirect impacts upon Balnagask to Cove LNCS	Permanent, minor adverse at the district level	Implementation of an HCMP and CEMP	Negligible
Direct/indirect impacts upon Tullos Hill LNCS	Negligible	None required	Negligible
Impacts upon scrub habitat within the site	Permanent, minor adverse at the local level	Implementation of an HCMP and CEMP	Negligible
Impacts upon neutral grassland within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Construction			
Impacts upon dry dwarf shrub heath within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon shingle/gravel above high-tide mark within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon boulders/rocks above high-tide mark within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon strandline vegetation within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon maritime hard cliff within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon coastal heathland within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon amenity grassland within the site	Permanent, minor adverse at the site level	Implementation of an HCMP and CEMP	Negligible
Impacts upon wall habitat within the site	Negligible	Implementation of an HCMP and CEMP	Negligible

Table 11.5: Summary of likely significant effects continued

Issue	Potential Effect	Mitigation or Enhancement Measures	Likely Residual Effect
Construction			
Impacts upon sea-wall habitat within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon building habitat within the site	Negligible	Implementation of an HCMP and CEMP	Negligible
Impacts upon Breeding Birds	Temporary, minor adverse at the local level	Best practice – working out-with the breeding bird season. Use of an ECoW to supervise work during the breeding bird season. Creation of a HCMP	Negligible
Impacts upon Wintering Birds	Temporary, minor adverse at the local level	Creation of an HCMP	Negligible
Impacts upon Migrant Birds	Temporary, minor adverse at the local level	Creation of an HCMP	Negligible
Impacts upon bat species	Negligible	None required	Negligible
Impacts upon otter	Temporary, minor adverse at the site level	No night working; The use of white light would be avoided on-site; No soil materials would be stockpiled in the site; Any trenches/excavations would have escape ramps provided in case otter fall in; and The creation of linked commuting corridors/ planting providing cover, in the HCMP.	Negligible
Impacts upon reptiles	Temporary, minor adverse at the site level	Adherence to the HCMP and CEMP	Negligible
Impacts upon invertebrates	Temporary, minor adverse at the site level	Adherence to the HCMP and CEMP	Negligible
Impacts upon flora	Permanent, minor adverse at the site level	Adherence to the HCMP and CEMP	Negligible
Impacts upon protected flora (curved sedge, sea pea and oyster plant)	Permanent, major adverse at the national level	Location of curved sedge, sea-pea and oyster plant Species location to be marked and buffer zone implemented If plants are to be lost, translocation will be used to protect the species	Negligible
Impacts upon other notable/protected species	Negligible	None required	Negligible

Table 11.5: Summary of likely significant effects continued

Issue	Potential Effect	Mitigation or Enhancement Measures	Likely Residual Effect
Completed Development			
Direct/indirect impact upon the integrity of the River Dee SAC (otter)*	Negligible	None required	Negligible
Direct/indirect impact upon the integrity of the River Dee LNCS	Negligible	None required	Negligible
Direct/indirect impacts upon Balnagask to Cove LNCS	Permanent, minor adverse at the district level	Ground maintenance programme as described in EMP.	Negligible
Impacts upon scrub habitat within the site	Permanent, minor adverse at the site level	Ground maintenance programme as described in EMP.	Permanent, minor beneficial
Impacts upon neutral grassland within the site	Permanent, minor adverse at the local level	Ground maintenance programme as described in EMP.	Permanent, minor beneficial
Impacts upon dry dwarf shrub heath within the site	Permanent, minor adverse at the local level	Ground maintenance programme as described in EMP.	Permanent, minor beneficial
Impacts upon shingle/gravel above high-tide mark within the site	Negligible	None required	Negligible
Impacts upon boulders/rocks above high-tide mark within the site	Negligible	None required	Negligible
Impacts upon strandline vegetation within the site	Permanent, minor adverse at the site level	Ground maintenance programme as described in EMP.	Permanent, minor beneficial
Impacts upon maritime hard cliff within the site	Negligible	None required	Negligible
Impacts upon coastal heathland within the site	Permanent, minor adverse at the site level	Ground maintenance programme as described in EMP.	Permanent, minor beneficial
Impacts upon amenity grassland within the site	Permanent, minor adverse at the site level	Implementation of an HCMP	Minor beneficial
Impacts upon wall habitat within the site	Negligible	None required	Negligible
Impacts upon sea-wall habitat within the site	Negligible	None required	Negligible
Impacts upon building habitat within the site	Negligible	None required	Negligible
Impacts upon Breeding Birds	Permanent, minor adverse at the local level	Use of sensitive lighting. Ground maintenance programme as described in EMP.	Permanent, minor beneficial
Impacts upon Wintering Birds	Permanent, minor adverse at the local level	Use of sensitive lighting. Ground maintenance programme as described in EMP.	Negligible
Impacts upon Migrant Birds	Temporary, minor adverse at the local level	Creation of an HCMP	Negligible

Table 11.5: Summary of likely significant effects continued

Issue	Potential Effect	Mitigation or Enhancement Measures	Likely Residual Effect
Completed Development			
Impacts upon bat species	Negligible	None required	Negligible
Impacts upon otter	Permanent, minor adverse at the site level	Use of sensitive lighting. Ground maintenance programme as described in EMP.	Negligible
Impacts upon reptiles	Negligible	None required	Negligible
Impacts upon invertebrates	Negligible	None required	Negligible
Impacts upon flora	Permanent, minor adverse at the site level	Ground maintenance programme as described in EMP.	Negligible
Impacts upon other notable/protected species	Negligible	None required	Negligible

* Refer to Chapter 13: Fish and Shellfish Ecology for an assessment of effects on Atlantic salmon and consequent possible effects on freshwater pearl mussel.

11.8 Summary and Conclusions

Based upon the findings of this ecological assessment it is considered that the proposed development is unlikely to lead to significant adverse effects in relation to terrestrial ecology, and that where impacts may arise, these can be scoped out through the implementation of the proposed mitigation and enhancement measures for the key species concerned.

Beneficial effects are predicted to occur to birds and invertebrates through proposed habitat enhancements which would more than compensate for the loss of existing habitat.

Further beneficial effects are predicted once the proposed development is completed and operational through the implementation of an HCMP with specific monitoring undertaken. In particular, the lighting of the port area would be designed to avoid adverse effects to otter and other fauna.

11.9 References

1. INSTITUTE OF ECOLOGY AND ENVIRONMENTAL MANAGEMENT IEEM, 2006. *Guidelines For Ecological Impact Assessment In The United Kingdom*.
2. HMSO, 1981. 'Wildlife and Countryside Act 1981 (as amended).
3. HMSO, 1996. The Wild Mammals (Protection) Act.
4. SCOTTISH GOVERNMENT, 2004. Nature Conservation (Scotland) Act 2004 (as amended).
5. HMSO, 2010. The Conservation of Habitats and Species Regulations 2010 (as amended).
6. SCOTTISH GOVERNMENT, 2011. The Wildlife and Natural Environment (Scotland) Act 2011.
7. ODPM, 1992. The Protection of Badgers Act.
8. Directive 79/409/ ECC on the Conservation of Wild Birds.
9. Directive 92/43/ ECC on the Conservation of Natural Habitats and of Wild Fauna and Flora.



10. European Protected Species are Species Listed in Annex IV of the Habitats Directive.
11. ABERDEEN CITY COUNCIL, 2012. Aberdeen Local Development Plan.
12. ABERDEEN CITY COUNCIL, 2012. SEA Environmental Report.
13. JNCC and DEFRA (on behalf of the Four Countries' Biodiversity Group). 2012 UK Post-Biodiversity Framework. July 2012. Available on-line from <http://jncc.defra.gov.uk/page-6189>.
14. HMSO, 1994. The UK Biodiversity Action Plan.
15. <http://magic.defra.gov.uk/MagicMap.aspx>.
16. <http://gateway.snh.gov.uk/sitelink>.