

12 TERRESTRIAL ECOLOGY

12.1 INTRODUCTION

12.1.1 Company

WYG

12.1.2 Author

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Phil has over 18 years' experience managing, co-ordinating and directing ecological assessments, in both public and private sectors. Project experience encompasses major infrastructure schemes, private commercial and residential developments, onshore wind energy, solar energy, conservation projects and major urban regeneration schemes.

12.1.3 Chapter Purpose

This chapter of the ES assesses the likely significant effects of the proposed development on the environment in terms of Ecology. The chapter and its supporting appendices describe the planning policy context, the assessment methodology; the baseline conditions at the application site and surroundings; the likely significant effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; the likely residual effects after these measures have been employed; and the cumulative effects. In summary, the objectives of the chapter are to:

- Assess the impact of the construction phase upon ecological receptors on site;
- Assess the impact of the construction phase upon ecological receptors on site;
- Identify any mitigation measures associated with the construction and operational phase.

12.1.4 2020 ES Update

This ES chapter relating to biodiversity has been reviewed against the following aspects of the application site (and related assessments within this ES) and changes have been made to the following:

- Baseline data validity: there have been no relevant changes to the baseline data, and the results of all ecological surveys completed in relation to the application site remain valid;
- Legislation/policy revisions: relevant policy within the draft Liverpool Local Plan have been updated, however there have been no related updates to legislation/policy that have affected either the methodology or findings of this assessment;
- Amendments to construction methodology: revisions to dock fill methodology have been reviewed and re-assessed in relation to relevant ecological receptors;
- The relevance and scale of the proposed development amendments (including amendments to the stadium design);

- Addition of new cumulative schemes: 20F/0217 – proposed hotel adjacent to Bramley-Moore dock, 17F/2628 - Northern Link Road, 18F/1419 - Southern Link Road, 19F/1745 - District Heating Network at Central Docks, 20F/1947 - 2-6 Lightbody Street, Liverpool & 20NM/1801 – Non-material amendment to LW outline consent;
- Revisions to air quality, lighting and noise and vibration assessments; and
- Statutory consultee (Natural England, Merseyside Environmental Advisory Service (MEAS) and Environment Agency) comments received in relation to earlier versions of this assessment submitted with the original planning application (Liverpool City Council planning application reference 20F/0001), and MMO licence application (reference: MLA/2020/00109).

Limited technical assessment has been undertaken relating to biodiversity to confirm the validity of the previous conclusions. The relevant assessment information is presented/discussed within this appendix and therefore this report has been revised to reflect these updates.

The sections that have been updated are detailed below:

- Section 12.2.3 – Scoping;
- Section 12.2.11 – Planning Policy and Legislation (updates to local policy);
- Section 12.4 – Potential Significant Effects;
- Section 12.6 – Assessment Pre-mitigation (Including Design Interventions);
- Section 12.8 – Assessment Post Mitigation;
- Section 12.9 – Ecology: Inter-development Cumulative Scheme Effects

12.1.5 Appendices

Appendix 12.1 – Biodiversity Report

12.2 METHODOLOGY

12.2.1 Legislation, Policy and Guidance

12.2.1.1 National Policy

Legislation, planning policy and guidance relating to developments and their potential effects on ecology are set out below.

A revised National Planning Policy Framework (NPPF, Ministry of Housing Communities & Local Government, 2019) (1) was issued on 19th February 2019 and currently supplements government Circular 06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System (2)

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 170 of the NPPF also states that:

“Planning policies and decisions should contribute to and enhance the natural environment by:

- a) *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) *maintaining the character of the undeveloped coast, while improving public access to it where appropriate*
- d) *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*
- e) *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and,*
- f) *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*
- g) *Paragraph 174 then goes on to confirmed that:*
- h) *When determining planning applications, local planning authorities should apply the following principles:*
- i) *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- j) *development on land within or outside a Site of Special Scientific Interest (SSSI), and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- k) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and,*
- l) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be*

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encouraged, especially where this can secure measurable net gains for biodiversity.”

Regarding Ecological Impact Assessments (EclAs) and Habitat Regulations Assessments (HRAs) – any sites identified, or required, within such assessments as compensatory measures for adverse effects on any Natura 2000/habitats site, should also be given the same level of protection as Potential Special Protection Areas (pSPAs) and Candidate Special Areas of Conservation (cSACs) themselves.

In addition, when an application is being determined, Paragraph 177 clarifies that:

“The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”

Paragraph 180 is also relevant as:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.”

12.2.1.2 Liverpool Unitary Development Plan (‘UDP’)

The statutory development plan for Liverpool is the Unitary Development Plan (2002) (3). Policy OE5 “PROTECTION OF NATURE CONSERVATION SITES AND FEATURES” states:

“The City Council will seek to protect the nature conservation interest of open land and the water environment in the City by not permitting development which would:

- i. destroy, fragment or adversely affect directly or indirectly a designated or proposed Special Protection Area (SPA), Ramsar site, or Site of Specific Scientific Interest (SSSI), unless the City Council is satisfied that there is no alternative solution and there are imperative reasons of overriding public interest;*
- ii. destroy, fragment or adversely directly or indirectly affect a Site of Nature Conservation Value as identified by the City Council unless it can be clearly demonstrated that there are reasons for the proposal including benefits to the community, which outweigh the need to safeguard the substantive nature conservation value of the site;*
- iii. destroy, fragment or adversely affect, directly or indirectly, a Regionally Important Geological /Geomorphological Site (RIGS) unless it can be demonstrated that the benefits of the proposal to the community outweigh the need to safeguard the geological value of the site;*

- iv. have an adverse effect on legally protected wildlife species; or*
- v. destroy, fragment or adversely affect, indirectly or directly, sites with known conservation value in a neighbouring authority area.*

In assessing criteria ii to iv full account will be taken of proposed mitigation measures.”

12.2.1.3 Liverpool Local Plan

The new local plan (2018 Submission Version – subject to minor modification in early 202), which will replace the existing adopted UDP, was submitted for examination in May 2018 but has not progressed further. The plan therefore does not have full weight in accordance NPPF para. 48.

The relevant policy is GI5 ‘Protection of Biodiversity and Geodiversity’ which states:

“Development which may result in a likely significant effect on an internationally important site must be accompanied by sufficient evidence to enable the Council to make a Habitats Regulations Assessment. Adverse effects should be avoided and/or mitigated to ensure that the integrity of internationally important sites is protected. Development which may adversely affect the integrity of internationally important sites will only be permitted where there are no alternative solutions and there are imperative reasons of overriding public interest and suitable compensatory provision is secured. This also applies to sites and habitats outside the designated boundaries that support species listed as being important in the designations of the internationally important sites. [Emphasis added]

Development which may cause direct or indirect significant harm to other designated sites of nature or geological conservation importance, Priority Habitats, legally protected species and / or Priority Species will only be permitted on:

- *National sites (Mersey Estuary Ramsar site/Mersey Estuary Site of Special Scientific Interest (SSSI)): where there are no alternatives and where the benefits of development clearly outweigh the impact on the features of the site that make it of special scientific interest and its broader contribution to the national network;*
- *Local Sites (Local Nature Reserves (LNRs), Local Wildlife Site (LWS) and Regionally Important Geological/Geomorphological Sites (RIGS): where the reasons for and the benefits of development clearly outweigh the impact on the nature conservation value of the site and its broader contribution to the Liverpool City Region (LCR) Ecological Network;*
- *Sites including Priority Habitats/ Irreplaceable habitats (including ancient woodlands and aged or veteran trees) where there are wholly exceptional reasons and a suitable compensation strategy exists having regard to*

Where it has been demonstrated that significant harm cannot be avoided, appropriate mitigation, replacement or other compensatory provision may be required.

Where significant harm resulting from development cannot be avoided, adequately mitigated or, as a last resort, compensated, then planning permission will be refused.

Development proposals which affect sites of nature conservation importance, priority habitats, legally protected species or priority species must be supported by an Ecological Appraisal and include details of avoidance, mitigation and /or compensation where appropriate.

The policy applies where development proposals in Liverpool may directly or indirectly affect sites with known conservation value in a neighbouring authority area.

This policy will apply to other sites recognised during the Plan period as being of nature conservation importance, including land provided as compensation.”

This chapter of the ES addresses relevant planning policy and local policy and plans by presenting the biodiversity baseline, assessing the likely impacts and addressing these through the mitigation hierarchy, in accordance with BS 42020.

12.2.1.4 Biodiversity 2020: A Strategy for England’s Wildlife & Ecosystem Services

Biodiversity 2020 replaces the previous UK Biodiversity Action Plan (BAP) and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species and is meant to embrace the wider countryside as a whole. The priority species and habitats considered under Biodiversity 2020 are the Species of Principal Importance (SPI) & Habitats of Principal Importance (HPI) detailed under Natural Environment and Rural Communities (NERC) Act 2006.

12.2.1.5 The Merseyside Biodiversity Group

The Merseyside Biodiversity Group was formed in 1997 to progress biodiversity action within Merseyside. It is a partnership of local authorities, statutory agencies, conservation organisations, higher education institutions and local people. The group is formed of a range of partners across Liverpool City Region working together to put forward a submission to Government to form a Local Nature Partnership. Local Nature Partnerships (LNPs) were introduced in Defra’s Natural Environment White Paper The Natural Choice: securing the value of nature, published in 2011, recognising that partnership working is essential to deliver strategic ambitions for the natural environment at a local level. The Merseyside Biodiversity Group are the lead the Mersey Biodiversity Action Plan incorporating a total of 44 species and habitat action plans for the local area.

12.2.1.6 Key Legislation

This assessment has been considered in the context of relevant UK, EU and international biodiversity and conservation legislation including:

- The Convention on Wetlands of International Importance especially as Waterfowl Habitat 1972 (the Ramsar or Wetlands Convention).
- The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC). The Conservation of Habitats and Species Regulations 2017 (as amended) represents the UK's implementation of the Directive (the Habitats Regs).
- The Convention on the Conservation of European Wildlife and Natural Habitats 1979 (the Bern Convention) - which carries an obligation to protect and conserve over 500 wild plant species and more than 1,000 wild animal species.
- The EC Council Directive on the Conservation of Wild Birds (79/409/EEC) - which provides a framework for the conservation and management of, and human interactions with, wild birds in Europe.
- The Wildlife and Countryside Act (WCA) 1981 (as amended).
- The Countryside and Rights of Way (CROW) Act 2000.
- The Natural Environment and Rural Communities (NERC) Act 2006.

12.2.2 Consultees and Scoping

- Natural England
- Merseyside Environmental Advice Service (MEAS)

Further details on these consultations are provided in the Scoping section below.

12.2.2.1 Scoping Consultation

A formal scoping report in relation to the application site was submitted to LCC and the Marine Management Organisation (MMO) on 15th May 2017 and a formal Scoping Opinion was received from LCC and the MMO on the 8th November 2017. Responses were received in relation to ecology, in advance of the Scoping Opinion issue, from NE (June 2017) and MEAS (June 2017).

A meeting was held between WYG, NE and MEAS on 9th August 2019 in order to further confirm requirements of both consultees in relation to this assessment. Written correspondence from both NE and MEAS following this meeting are presented within Appendix 12.1. Further details regarding the scope of the study area are provided subsequently.

12.2.2.2 Planning Application Consultation

Consultation responses in relation to the submitted planning application for the original scheme were issued by Natural England and MEAS in April 2020. Following review of consultation responses, a meeting was held between WYG, MEAS and NE in July 2020 in order to discuss necessary changes to the revised ecological assessment. Consultee comments and

responses are summarised in Appendix 5 of ES Appendix 12.1, ES Volume III.

A Shadow Habitats Regulations Assessment (HRA) has been produced (Appendix 4 of ES Appendix 12.1, ES Volume III), which provides both an Assessment of Likely Significant Effects (ALSE) and an Appropriate Assessment (AA), this report has been produced separately to the EclA but is referred to in the relevant sections of this chapter.

12.2.3 Consideration of Climate Change

Climate change has been considered in terms of future use of the site and how this will affect habitats associated with the site during construction and operation phases of the site.

12.2.4 Consideration of Human Health

Human Health is not applicable to this chapter.

12.2.5 Consideration of Risk of Major Accidents and/or Disasters

The identified major accidents and/or disasters are not applicable to this chapter.

12.2.6 Alternatives

A comprehensive alternative sites assessment has been undertaken and is addressed within Chapter 5 Alternatives and Design Evolution. An alternative future baseline scenario has been included within the assessment for comparison purposes as stated in Chapter 2 EIA Methodology.

12.2.7 Assessment of Baseline Conditions & Receptor Sensitivity

The impact assessment for biodiversity has been carried out with reference to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018 v1.1 (4)), hereafter referred to as the 'CIEEM Guidelines'. The impact assessment process involves:

- Identifying and characterising impacts;
- Incorporating measures to avoid or mitigate (reduce) these impacts;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

The starting point for any assessment of impacts is to determine which ecological features are important and should be subject to detailed assessment. Ecological features can be important for a variety of reasons, for example, the quality or extent of designated sites or habitats,

habitat/species rarity, the extent to which they are threatened throughout their range, or their rate of decline (CIEEM, 2018).

12.2.7.1 Study Area

For the purposes of this assessment the study area incorporates the application site which is defined by the redline boundary and all areas within.

The area of search for the desk study incorporates the application site plus a 2km search area around the application site.

The desk study area was extended to 10km for Natura 2000 and Ramsar sites to incorporate internationally designated sites based on consultation received from NE 29th June 2017 and 2nd September 2019, and, MEAS 23rd June 2017 and 21st August 2019 – see above.

NE confirmed the following designated sites should be considered within this assessment:

- Mersey Narrows & North Wirral Foreshore Special Protection Area (SPA) & Ramsar;
- Mersey Estuary SPA;
- Liverpool Bay SPA;
- Ribble & Alt Estuaries SPA & Ramsar;
- Mersey Narrows Site of Special Scientific Interest (SSSI); and
- North Wirral Foreshore SSSI.

In addition to the above, although not highlighted by NE as a site to be considered, the Mersey Estuary Ramsar site has also been included within this assessment as it shares the same boundary as the Mersey Estuary SPA.

It should be noted that advice provided by NE in 2017 indicated that Sefton Coast Special Area of Conservation (SAC) and Dee Estuary SAC & SPA should be considered. However, this advice was revisited during a meeting with NE on 19th September 2019 and given the distance of these Natura 2000 sites from the application site it was agreed that it was unlikely that potential impact pathways would affect these designated sites since;

- Dee Estuary SAC/SPA is 2.8km north-west from the application site and largely isolated from any impacts by the Wirral Peninsula; and
- Sefton Coast SAC (5.21km north) is designated for habitats which support internationally important population of great crested newt *Triturus cristatus* and petalwort *Petalophyllum ralfsii*, none of which are likely to occur within the application site or surrounding area, nor is the application site considered likely to form functional habitat for these species.

It was therefore agreed with NE and MEAS that Sefton coast SAC and Dee Estuary SAC/SPA could be excluded from consideration within this assessment.

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12.2.7.2 Surveys

In summary it was agreed that the EclA should include an assessment based on the findings of the following surveys (all presented within appendix 12,1:

- Ecological appraisal (including extended phase 1 habitat survey data collected during 2017 and 2019);
- Breeding, passage and wintering bird surveys (including survey data collected during 2016/17 and 2018/19);
- Bat emergence/re-entry survey (including data collected during 2017, 2019 and 2020)

The Extended Phase 1 habitat Survey and bat surveys were undertaken within the red line of the application site only. No suitable habitat for badgers was present within 30m of the application site boundary and therefore, these areas were not searched. In order to determine value of areas surrounding the application site for breeding and wintering birds, the survey area was extended to 400m beyond the application site for breeding, wintering and passage bird surveys.

12.2.7.3 Determining Importance

The CIEEM Guidelines recommend that the importance of ecological features is considered within a defined geographical context. For the purpose of this assessment, the following levels have been used:

- **International** – SPAs, SACs, Ramsar Sites;
- **National** – Sites designated at UK level, e.g. SSSI;
- **Regional** – Habitats or populations of species of importance at a regional (i.e. north-west of England) level;
- **County** – Designated Sites, such as Site of Importance for Nature Conservation (SINC or habitats / species populations of importance at a county (i.e. Merseyside) level;
- **Local** – Habitats or species populations of importance in a local (e.g. Liverpool Waters) context; and
- **Negligible** – Habitats or species populations were either:
 - not detected on site;
 - the potential for them to be present is negligible; or
 - the habitat / species is present, but its presence is considered insignificant in relation to the application site and wider environment.

12.2.7.4 Habitats

With reference to the CIEEM Guidelines, the importance of habitats is measured against published selection criteria where available. Habitat types of European (international) conservation importance are listed on Annex I of the Habitats Directive. Habitats that are considered a priority for

conservation in England are listed as Habitats of Principal Importance (HPIs) under Section 41 of the NERC Act 2006. Reference is also made to the local Habitat Action Plans (LHAPs).

Where important habitat types are affected but are currently in a degraded or unfavourable condition, their potential importance is considered, including the potential to contribute to conservation objectives. In accordance with the guidance, the assessor can use their informed professional judgment to assign certain features a greater importance if there is a reasonable expectation that they can be restored to that higher importance in the future.

12.2.7.5 Species

Species of European (international) conservation importance are listed in Annexes II, IV and V of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) and Annex I of the EC Council Directive on the Conservation of Wild Birds (79/409/EEC). Species that are considered to be priorities for conservation in England are listed under Section 41 of the NERC Act 2006.

In accordance with the CIEEM Guidelines, the importance of species' populations is measured using existing criteria where available. Contextual information about distribution and abundance is considered, including trends based on any historical records available.

12.2.8 Assessment of Impact

12.2.8.1 Predicting and Characterising Ecological Impacts

With regards to the CIEEM Guidelines, when describing impacts, the following characteristics are considered – noting that not all of these are relevant to every impact:

- **Positive or negative** – if an impact will improve or reduce the quality of the environment;
- **Extent** – the spatial or geographical area over which the impact/effect may occur;
- **Magnitude** – refers to size, amount, intensity and volume. If an impact is deemed to be significant then its magnitude, in quantitative terms, should be assessed;
- **Duration** – the time for which an impact is expected to last;
- **Timing and frequency** – whether impacts occur during critical life-stages or seasons; and,
- **Reversibility** – an irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation.

12.2.8.2 Direct and Indirect Ecological Impacts

Both direct and indirect impacts are considered within this assessment. A direct impact is directly attributable to a defined action such as the physical loss of a habitat or the immediate mortality of an individual of a particular species. Indirect impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or ecological feature. An example of an indirect effect would be the loss of an important prey species for a predator.

12.2.9 Assessment of Significance

In accordance with the CIEEM Guidelines, the assessment will only describe those characteristics relevant to understanding the ecological effects and determining significance. A significant effect, in ecological terms, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Effects can be considered significant at a wide range of scales from international to local.

As noted above, impacts are only assessed in detail for features of recognised importance, such that impacts upon them may be significant, or where a legal offence is predicted to occur. Therefore, for the purposes of this assessment, impacts are assessed in detail only for those ecological features that are of at least local importance or are subject to some form of legal protection. Impacts on any features of lower importance would, by definition, have no significant effect on the wider ecology / population of that feature.

After assessing the effects of the proposal, all reasonable attempts are made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts that will result in effects that are significant, and proposed compensatory measures, will be the factors considered against ecological objectives (legislation and policy) in determining the outcome of the application (CIEEM, 2019) (4).

12.2.10 Relevant Associated Development

No other associated development has been considered within this assessment.

12.2.11 Assumptions/Limitations

There are no significant overall limitations that are considered to compromise the overall validity and robustness of this EclA, however any qualifications or limitations that are specifically relevant to a particular floral or faunal survey are provided in the relevant Technical Appendices.

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12.3 BASELINE CONDITIONS

| KEY RECEPTORS | DESCRIPTION | SENSITIVITY | FURTHER INFORMATION |
|--|---|---------------|---|
| Statutory and Designated Sites for Wildlife | | | |
| Liverpool Bay / Bae Lerpwl SPA (UK9020294) (5) | <p>Adjacent the western boundary of the application site, designated area: 252,757.73 ha.</p> <p>Liverpool Bay/Bae Lerpwl SPA was classified as a marine SPA in August 2010. It was extended into English inshore waters and into UK offshore waters as of 31st October 2017. This extended the range of the SPA to adjacent to the application site.</p> <p>Supports internationally important populations of wintering birds:</p> <ul style="list-style-type: none">Article 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:<ul style="list-style-type: none">Red-throated diver, <i>Gavia stellata</i>, 6.89% of the GB population (5-year peak mean 2004/05 - 2010/11), 1,171 individualsLittle gull, <i>Hydrocoloeus minutus</i>, (wintering) (5-year peak mean 2004/05 - 2010/11), 319 individualsLittle tern, <i>Sternula albifrons</i>, (breeding) 6.84% of the GB population 5-year mean 2010 – 2014), 130 pairs (260 individuals)Common tern, <i>Sterna hirundo</i>, (breeding) 1.80% of the GB population 5-year mean 2011 – 2015), 180 pairs (360 individuals)ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:<ul style="list-style-type: none">Common scoter, <i>Melanitta nigra</i>, 10.31% of the NW European population regularly occurring migrant (5-year mean of peaks 2004/05 - 2010/11), 56,679 individualsARTICLE 4.2 QUALIFICATION (79/409/EEC) an internationally important assemblage of birds.<ul style="list-style-type: none">Over winter the area regularly supports: 69,687 water birds (5-year peak mean 2004/05 - 2010/11) including: (over 1% GB or 2000 individuals) red-throated diver, little gull, red-breasted merganser <i>Mergus serrator</i>, cormorant <i>Phalacrocorax carbo</i>, (less than 1% GB or less than 2000 individuals) black-headed gull <i>Chroicocephalus ridibundus</i>, common gull <i>Larus canus</i>, common eider <i>Somateria mollissima</i>, northern fulmar <i>Fulmarus glacialis</i>, great black- backed gull <i>Larus marinus</i>, great crested grebe <i>Podiceps cristatus</i>, common murre <i>Uria aalge</i>, northern gannet <i>Morus bassanus</i>, Atlantic puffin <i>Fratercula arctica</i>, herring gull <i>Larus argentatus</i>, black-legged kittiwake <i>Rissa tridactyla</i>, lesser black-backed gull <i>Larus fuscus</i>, common loon <i>Gavia immer</i>, European shag <i>Phalacrocorax aristotelis</i>, razorbill <i>Alca torda</i> and velvet scoter <i>Melanitta fusca</i>. | International | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Mersey Narrows and North Wirral Foreshore SPA (UK9020287) (6) | <p>Located 1.22km to the west of the application site, designated area :2078.41 ha.</p> <p>Component SSSIs: Mersey Narrows SSSI & North Wirral Foreshore SSSI</p> <p>Overlapping Protected Areas: Dee Estuary/ Aber Dyfrdwy SAC & Mersey Narrows and North Wirral Foreshore Ramsar Supports internationally important populations of breeding and wintering birds:</p> <ul style="list-style-type: none">ARTICLE 4.1 QUALIFICATION (2009/147/EC): Over winter the area regularly supports:<ul style="list-style-type: none">Bar-tailed godwit <i>Limosa lapponica</i>, (5.5% of the GB population 5-year peak mean 2004/05 - 2008/09), 3,344 individualsCommon tern, 213 individuals — non-breeding (2004/05 — 2008/09)On passage the area regularly supports:<ul style="list-style-type: none">Little gull: 213 individuals (no national population estimate)Common tern: 1,475 individuals (no national population estimate)In the breeding season the area regularly supports:<ul style="list-style-type: none">Common tern: 1.8% of the GB population (2005-2009), 177 pairs (354 individuals)ARTICLE 4.2 QUALIFICATION (2009/147/EC). Over winter the area regularly supports:<ul style="list-style-type: none">Red knot <i>Calidris canutus islandica</i> (2.4% W Europe/ Waddensea/Britain/Ireland population 5-year peak mean (2004/05 - 2008/09)), 10,655 individualsARTICLE 4.2 QUALIFICATION (2009/147/EC): An internationally important assemblage of birds in the non-breeding season the area regularly supports:<ul style="list-style-type: none">32,366 individual water birds (five-year peak mean 2004/05 - 2008/09) Including: cormorant, oystercatcher <i>Haematopus ostralegus</i>, grey plover <i>Pluvialis squatarola</i>, sanderling <i>Calidris alba</i>, red knot, dunlin <i>Calidris alpina alpina</i>, bar- tailed godwit and redshank <i>Tringa totanus</i>. | International | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Mersey Narrows and North Wirral Foreshore Ramsar (UK11042) (7) | <p>Located 1.22km to the west of the application site, designated area: 2078.41 ha</p> <p>Component SSSIs: Mersey Narrows SSSI & North Wirral Foreshore SSSI</p> <p>Overlapping Protected Areas: Dee Estuary / Aber Dyfrdwy SAC & Mersey Narrows and North Wirral Foreshore SPA</p> | International | Full details of the ecological |

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| KEY RECEPTORS | DESCRIPTION | SENSITIVITY | FURTHER INFORMATION |
|--|--|---------------|---|
| | <ul style="list-style-type: none">■ The site qualifies under CRITERION 4 because it regularly supports plant and/or animal species at a critical stage in their life cycles or provides refuge during adverse conditions. During 2004/05 - 2008/09 the Mersey Narrows and North Wirral Foreshore Ramsar site supported important numbers of non-breeding little gulls and common terns.■ The site qualifies under CRITERION 5 because it regularly supports 20,000 or more water birds. During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported an average peak of 32,402 individual water birds.■ The site qualifies under CRITERION 6 because it regularly supports 1% of the individuals in the populations of the following species or subspecies of water bird in any season. During the winters 2004/05 - 2008/09, the Mersey Narrows and North Wirral Foreshore Ramsar site supported 2.4% of the red knot islandica subspecies, W Europe / Waddensea / Britain / Ireland (non-breeding) population of knot and 2.8% of the lapponica subspecies W Europe / NW Africa (non-breeding) population of bar-tailed godwits. | | baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Ribble and Alt Estuaries SPA (UK9005103) (8) | <p>Located 4.52km to the north-west of the application site, designated area :12412.31ha</p> <p>Component SSSIs: Ribble Estuary SSSI & Sefton Coast SSSI</p> <p>Overlapping Protected Areas: Sefton Coast SAC & Ribble and Alt Estuaries Ramsar</p> <p>Supports internationally important populations of breeding and wintering birds:</p> <ul style="list-style-type: none">■ ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports:<ul style="list-style-type: none">— Ruff <i>Philomachus pugnax</i> (Western Africa - wintering), 1 nest, 9.1% of the GB breeding population Count as at late 1980s— Common tern (Northern/Eastern Europe - breeding), 182 pairs (264 individuals), 1.5% of the GB breeding population Count as at 1996■ Over winter the area regularly supports:<ul style="list-style-type: none">— Tundra swan <i>Cygnus columbianus bewickii</i> (Western Siberia/North-eastern & North-western Europe), 276 individuals, 3.9% of the GB population 5-year peak mean 1993/94 - 1997/98— Whooper swan <i>Cygnus cygnus</i> (Iceland/UK/Ireland), 182 individuals, 3.3% of the GB population 5-year peak mean 1993/94 - 1997/98— Bar-tailed godwit (Western Palearctic - wintering), 20,086 individuals, 37.9% of the GB population 5-year peak mean 1993/94 - 1997/98— Golden plover <i>Pluvialis apricaria</i> [North-western Europe - breeding], 3,598 individuals, 1.4% of the GB population 5-year peak mean 1993/94 - 1997/98■ ARTICLE 4.2 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports:<ul style="list-style-type: none">— Lesser black-backed gull (Western Europe/Mediterranean/Western Africa), 1,800 pairs (3,600 individuals), 1.5% of the breeding population Count as at 1993■ Over winter the area regularly supports:<ul style="list-style-type: none">— Northern pintail <i>Anas acuta</i> (North-western Europe), 2,731 individuals 4.6% of the population 5-year peak mean 1993/94 - 1997/98— Teal <i>Anas crecca</i> (North-western Europe), 7,157 individuals, 1.8% of the population 5-year peak mean 1993/94 - 1997/98— Wigeon <i>Anas penelope</i> (Western Siberia/North-western/North-eastern Europe), 85,259 individuals, 6.8% of the population 5-year peak mean 1993/94 - 1997/98— Pink-footed goose <i>Anser brachyrhynchus</i> (Eastern Greenland/Iceland/UK), 11,764 individuals, 5.2% of the population 5-year peak mean 1993/94 - 1997/98— Sanderling (Eastern Atlantic/Western & Southern Africa - wintering), 2,882 individuals, 2.9% of the population 5-year peak mean 1993/94 - 1997/98— Dunlin (Northern Siberia/Europe/Western Africa), 39,376 individuals, 2.8% of the population 5-year peak mean 1993/94 - 1997/98— Red knot (North-eastern Canada/Greenland/Iceland/North-western Europe), 68,922 individuals, 19.7% of the population 5-year peak mean 1993/94 - 1997/98— Oystercatcher (Europe & Northern/Western Africa), 18,535 individuals, 2.1% of the population 5-year peak mean 1993/94 - 1997/98— Black-tailed godwit (Iceland - breeding), 1,273 individuals, 1.8% of the population 5-year peak mean 1993/94 - 1997/98— Grey plover (Eastern Atlantic - wintering), 9,355 individuals, 6.2% of the population 5-year peak mean 1993/94 -1997/98— Common shelduck <i>Tadorna tadorna</i> (North-western Europe), 4,925 individuals, 1.6% of the population 5-year peak mean 1993/94 - 1997/98— Common redshank (Eastern Atlantic - wintering), 2,505 individuals, 1.7% of the population 5-year peak mean 1993/94 - 1997/98■ On passage the area regularly supports:<ul style="list-style-type: none">— Sanderling (Eastern Atlantic/Western & Southern Africa - wintering), 6,535 individuals, 6.5% of the population 5-year peak mean 1993 - 1997— Ringed plover <i>Charadrius hiaticula</i> (Europe/Northern Africa - wintering), 1,657 individuals, 3.3% of the population 5-year peak mean 1993 - 1997■ THE SITE QUALIFIES UNDER ARTICLE 4.2 OF THE DIRECTIVE (79/409/EEC) as it is used regularly by over 20,000 water birds (water birds as defined by the Ramsar Convention) in any season: | International | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |

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| KEY RECEPTORS | DESCRIPTION | SENSITIVITY | FURTHER INFORMATION |
|---|--|---------------|---|
| | <div><div><div>—</div><div>In the non-breeding season, the area regularly supports 323,861 individual water birds (5-year peak mean 1993/94 - 1997/98), including cormorant, Bewick’s Swan, whooper swan, pink-footed goose, shelduck, wigeon, teal, pintail, scaup <i>Aythya marila</i>, common scoter, oystercatcher, ringed plover, golden plover, grey plover, lapwing <i>Vanellus vanellus</i>, knot <i>Calidris canutus</i>, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, whimbrel <i>Numenius phaeopus</i>, curlew <i>Numenius arquata</i> and redshank.</div></div><div><div>■</div><div>THE SITE QUALIFIES UNDER ARTICLE 4.2 OF THE DIRECTIVE (79/409/EEC) as it is used regularly by over 20,000 water birds (water birds as defined by the Ramsar Convention) in any season:</div></div><div><div>—</div><div>In the breeding season, the area regularly supports 29,236 individual seabirds (count period ongoing), including Black-headed Gull, Lesser Black-backed Gull and Common Tern.</div></div></div> | | |
| Ribble and Alt Estuaries Ramsar (UK11057) (9) | <div>Located 4.52km to the north-west of the application site, designated area: 13464.1 ha</div> <div>Component SSSIs: Mersey Narrows SSSI & North Wirral Foreshore SSSI</div> <div>Overlapping Protected Areas: Overlapping Protected Areas: Sefton Coast SAC & Ribble and Alt Estuaries SPA</div> <div><div>■</div><div>The site qualifies under CRITERION 2 because it supports up to 40% of the Great Britain population of natterjack toads <i>Bufo calamita</i>. It also supports petalwort <i>Petalophyllum ralfsii</i>(Conservation status: European Red List: Vulnerable; EC Habitats Directive: Annex II).</div></div> <div><div>■</div><div>The site qualifies under CRITERION 5 Assemblages of international importance:</div><div><div>—</div><div>Species with peak counts in winter: 222,038 waterfowl (5-year peak mean 1998/99-2002/2003)</div></div></div> <div><div>■</div><div>The site qualifies under CRITERION 6 Species/populations occurring at levels of international importance. Qualifying species/populations (as identified at designation): Species regularly supported during the breeding season: Species with peak counts in spring/autumn:</div><div><div>—</div><div>Black-tailed godwit, Iceland/W Europe, 3323 individuals, representing an average of 7% of the population (5-year peak mean 1998/92002/3)</div><div>—</div><div>Common redshank, 4465 individuals, representing an average of 1.7% of the population (5-year peak mean 1998/9-2002/3)</div><div>—</div><div>Dunlin, W Siberia/W Europe 38,196 individuals, representing an average of 2.8% of the population (5-year peak mean 1998/9-2002/3 - spring peak)</div><div>—</div><div>Grey plover, E Atlantic/W Africa -wintering 11,021 individuals, representing an average of 4.4% of the population (5-year peak mean 1998/9-2002/3 - spring peak) Red knot.</div><div>—</div><div>Red knot, W & Southern Africa (wintering) 42,692 individuals, representing an average of 9.4% of the population (5-year peak mean 1998/9-2002/3)</div><div>—</div><div>Ringed plover, Europe/Northwest Africa, 3761 individuals, representing an average of 5.1% of the population (5-year peak mean 1998/9-2002/3 - spring peak)</div><div>—</div><div>Sanderling, Eastern Atlantic 7401 individuals, representing an average of 6% of the population (5-year peak mean 1998/92002/3 - spring peak)</div></div></div> <div><div>■</div><div>Species with peak counts in winter</div><div><div>—</div><div>Bar-tailed godwit, W Palearctic 13,935 individuals, representing an average of 11.6% of the population (5-year peak mean 1998/9-2002/3)</div><div>—</div><div>Oystercatcher, Europe & NW Africa -wintering 18,926 individuals, representing an average of 1.8% of the population (5-year peak mean 1998/9-2002/3)</div><div>—</div><div>Teal, NW Europe 5107 individuals, representing an average of 1% of the population (5-year peak mean 1998/92002/3)</div><div>—</div><div>Wigeon, NW Europe 69,841 individuals, representing an average of 4.6% of the population (5-year peak mean 1998/9-2002/3)</div><div>—</div><div>Northern pintail, NW Europe 1,497 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/9-2002/3)</div><div>—</div><div>Pink-footed goose, Greenland, Iceland/UK 6,552 individuals, representing an average of 2.42% of the population (5year peak mean 1998/9-2002/3)</div><div>—</div><div>Tundra swan, NW Europe 230 individuals, representing an average of 1.1% of the B population (5year peak mean 1998/92002/3)</div><div>—</div><div>Whooper swan, Iceland/UK/Ireland 211 individuals, representing an average of 1% of the population (5-year peak mean 1998/9-2002/3)</div></div></div> | International | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Mersey Estuary SPA (UK9005131) (10) | <div>Located 4.45km to the south of the application site, designated area: 5,023.35ha</div> <div>Component SSSIs: Mersey Estuary SSSI & New Ferry SSSI</div> <div>Overlapping Protected Areas: Mersey Estuary Ramsar</div> <div>Supports internationally important populations of wintering birds:</div> <div><div>■</div><div>ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:</div><div><div>—</div><div>Golden plover (North-western Europe — breeding), 3,040 individuals, 1.2% of the GB population 5-year peak mean, 1993/94 -1997/98</div></div></div> <div><div>■</div><div>ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports:</div><div><div>—</div><div>Northern pintail (North-western Europe), 1,169 individuals, 1.9% of the population 5-year peak mean, 1993/94 - 1997/98</div></div></div> | International | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |

TERRESTRIAL ECOLOGY

| KEY RECEPTORS | DESCRIPTION | SENSITIVITY | FURTHER INFORMATION |
|--------------------------------------|--|---------------|---|
| | <div><div></div><div><div><div>—</div><div>Teal (North-western Europe), 11,723 individuals, 2.9% of the population 5-year peak mean, 1993/94 - 1997/98</div></div><div><div>—</div><div>Wigeon, (Western Siberia/North-western/North-eastern Europe), 11,886 individuals, 4.2% of the population in Great Britain 5-year peak mean, 1993/94?1997/98</div></div><div><div>—</div><div>Dunlin, (Northern Siberia/Europe/Western Africa), 48,789 individuals 3.6% of the Population 5-year peak mean, 1993/94 -1997/98</div></div><div><div>—</div><div>Black-tailed godwit, (Iceland - breeding), 976 individuals, 1.6% of the population 5-year peak mean, 1993/94 -1997/98</div></div><div><div>—</div><div>Curlew, (Europe - breeding), 1,300 individuals, 1.1% of the population in Great Britain 5-year peak mean, 1993/94 -1997/98</div></div><div><div>—</div><div>Grey plover, (Eastern Atlantic - wintering), 3,040 individuals, 2.3% of the population in Great Britain 5-year peak mean, 1993/94 - 1997/98</div></div><div><div>—</div><div>Great crested grebe (North-western Europe - wintering), 136 individuals, 1.4% of the population in Great Britain 5-year peak mean, 1993/94 - 1997/98</div></div><div><div>—</div><div>Shelduck, (North-western Europe), 6,476 individuals, 2.2% of the population 5-year peak mean, 1993/94 - 1997/98</div></div><div><div>—</div><div>Redshank, (Eastern Atlantic - wintering), 4,513 individuals, 2.8% of the population 5-year peak mean, 1993/94 - 1997/98</div></div><div><div>—</div><div>Lapwing, (Europe - breeding), 10,544 individuals, 0.7% of the population in Great Britain 5-year peak mean, 1993/94 - 1997/98 On passage the area regularly supports:</div></div><div><div>—</div><div>Ringed plover, (Europe/Northern Africa - wintering), 505 individuals, 1.7% of the population in Great Britain 5-year peak mean, 1993 — 1997</div></div><div><div>—</div><div>Redshank, (Eastern Atlantic - wintering), 4,513 individuals, 3.8% of the population 5-year peak mean, 1993/1997</div></div></div></div> | | |
| Mersey Estuary Ramsar (UK11041) (11) | <div><div>Located 4.45km to the south of the application site, designated area : 5,023.35ha</div><div>Component SSSIs: Mersey Estuary SSSI & New Ferry SSSI</div><div>Overlapping Protected Areas: Mersey Estuary SPA</div><div><div><div>■</div><div>The site qualifies under CRITERION 5 as it supports assemblages of international importance species with peak counts in winter: 89576 waterfowl (5-year peak mean 1998/99 — 2002/03).</div></div><div><div>■</div><div>The site qualifies under CRITERION 6 as it supports species/populations occurring at levels of international importance. Qualifying species/populations (as identified at designation): Species with peak counts in spring/autumn:<div><div>—</div><div>Common shelduck, NW Europe 12,676 individuals, representing an average of 4.2% of the population (5-year peak mean 1998/9-2002/3)</div></div><div><div>—</div><div>Black-tailed godwit, Iceland/W Europe 2,011 individuals, representing an average of 5.7% of the population (5-year peak mean 1998/9-2002/3)</div></div><div><div>—</div><div>Common redshank, 6,651 individuals, representing an average of 2.6% of the population (5-year peak mean 1998/9-2002/3)</div></div></div></div><div><div>■</div><div>Species with peak counts in winter:<div><div>—</div><div>Teal, NW Europe 10,613 individuals, representing an average of 2.6% of the population (5-year peak mean 1998/9-2002/3)</div></div><div><div>—</div><div>Northern pintail, NW Europe 565 individuals, representing an average of 2% of the GB population (5-year peak mean 1998/9- 2002/3)</div></div><div><div>—</div><div>Dunlin, W Siberia/W Europe 48,364 individuals, representing an average of 3.6% of the population (5-year peak mean 1998/9-2002/3)</div></div></div></div></div></div> | International | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Mersey Narrows SSSI (12) | <div><div>Located 1.22km to the west of the application site, designated area: 117.84ha</div><div><div>■</div><div>Notified features for this SSSI are ‘Aggregations of non-breeding birds’:<div><div>—</div><div>Cormorant, Redshank and Turnstone <i>Arenaria interpres</i>.</div></div></div><div><div>■</div><div>Habitats within this SSSI are:<div><div>—</div><div>Isolated saline lagoons</div></div><div><div>—</div><div>Moderately exposed sandy shores (with polychaetes and bivalves)</div></div><div><div>—</div><div>Sheltered muddy shores (including estuarine muds)</div></div><div><div>—</div><div><i>Suaeda maritima</i> saltmarsh</div></div></div></div></div></div> | National | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| North Wirral foreshore SSSI (13) | <div><div>Located 3.1km to the north-west of the application site, designated area: 2109.9ha</div><div><div>■</div><div>Notified features for this SSSI are ‘Aggregations of non-breeding birds’:<div><div>—</div><div>Bar-tailed godwit, Dunlin, Knot and Turnstone.</div></div></div><div><div>■</div><div>Habitats within this SSSI are:<div><div>—</div><div>Traditional low marsh vegetation with common saltmarsh grass <i>Puccinellia maritima</i>, annual <i>Grassworts Salicornia</i> species an Annual sea-blite <i>Suaeda maritima</i></div></div></div></div></div></div> | National | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |

TERRESTRIAL ECOLOGY

| KEY RECEPTORS | DESCRIPTION | SENSITIVITY | FURTHER INFORMATION |
|---|---|-------------|---|
| | <div><div>— <i>Spartina anglica</i> saltmarsh</div><div>— Wave exposed sandy shores (with burrowing crustaceans and polychaetes)</div></div> | | |
| Melrose Cutting LWS | <div>Located 1.37km to the south-west of the application site, designated area: 4.37ha</div> <div><div>■ A mosaic of habitats along an ~750m section of old railway cutting. Locally rare plant species include: wall rue <i>Asplenium ruta-muraria</i>, common broomrape <i>Orobanche minor</i>, hare’s foot clover <i>Trifolium arvense</i>, heath woodrush <i>Luzula multiflora</i> and yellow-wort <i>Blackstonia perfoliate</i>.</div></div> | County | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Leeds-Liverpool Canal LWS | <div>Located 0.37km to the south-east of the application site, designated area: 8.59ha</div> <div><div>■ The canal connects with the River Mersey via the Stanley Dock to Pier Head Link and supports a variety of plant species, including nine locally rare species, these being common mallow <i>Malva neglecta</i>, hemp agrimony <i>Eupatorium cannabinum</i>, marsh woundwort <i>Stachys palustris</i>, reed sweet-grass <i>Glyceria maxima</i>, sheep’s fescue <i>Festuca ovina</i>, wavy hair grass <i>Deschampsia flexuosa</i>, wild carrot <i>Daucus carota</i>, wood sage <i>Teucrium scorodonia</i> and yellow water-lily <i>Nuphar lutea</i>.</div><div>■ There are many water birds that breed along the canal including: mute swan <i>Cygnus olor</i>, mallard <i>Anas platyrhynchos</i>, coot <i>Fulica atra</i>, moorhen <i>Gallinula chloropus</i> and grey wagtail <i>Motacilla cinerea</i>. The canal is also important for wintering birds, including kingfisher <i>Alcedo athis</i>, great crested grebe and goldeneye <i>Bucephala clangula</i>.</div></div> | County | Full details of the ecological baseline, evaluation and assessment are presented within Appendix 12.1 ES Volume III |
| Habitats | | | |
| <div>Scattered scrub</div> <div>Tall ruderal vegetation Ephemeral /short perennial vegetation</div> <div>Introduced scrub</div> <div>Bare ground — Hard standing</div> <div>Buildings</div> | <div>application site predominantly consisted of hard stand surrounding an open water dock with a number of buildings</div> <div>All habitat were considered species poor supporting locally common and widespread floral species.</div> <div><div>■ Scattered Scrub: There were several small areas of scattered scrub recorded throughout the application site. Dominant scrub species present included; elder <i>Sambucus nigra</i>, bramble <i>Rubus fruticosus agg.</i> and buddleja <i>Buddleja davidii</i>. In addition the following grass and herbaceous species were recorded; common ragwort <i>Senecio jacobaea</i>, Yorkshire fog <i>Holcus lanatus</i>, cock’s-foot grass <i>Dactylis glomerata</i>, spear thistle <i>Cirsium vulgare</i>, ribwort plantain <i>Plantago lanceolata</i>, ragged robin <i>Lychnis flos-cuculi</i>, common stork’s-bill <i>Erodium cicutarium</i>, scarlet pimpernel <i>Anagallis arvensis ssp. arvensis</i>, Canadian fleabane <i>Conyza canadensis</i> and common nettle <i>Urtica dioica</i>.</div><div>■ Tall ruderal vegetation: Several small areas of tall ruderal vegetation were recorded throughout the application site. Dominant species present were rosebay willowherb <i>Chamerion angustifolium</i>, broad-leaved dock <i>Rumex obtusifolius</i> and mugwort <i>Artemesia vulgaris</i>. In addition, the following scrub, grasses and flowering plant species were present within the area of tall ruderals: snowberry <i>Symphoricarpos albus</i>, annual meadow-grass <i>Poa annua</i>, Spanish bluebell <i>Hyacinthoides hispanica</i> and red osier dogwood <i>Cornus sericea</i> were occasionally present.</div><div>■ Ephemeral/Short Perennial vegetation: Several small areas and scattered patches of ephemeral/short perennial vegetation were identified across the application site. Species recorded were broad-leaved willowherb <i>Epilobium montanum</i>, common ragwort, Canadian fleabane, common birds-foot trefoil <i>Lotus corniculatus</i>, wavy bittercress <i>Cardamine flexuosa</i>, white clover <i>Trifolium repens</i>, ribwort plantain, colt’s-foot <i>Tussilago farfara</i>, hemlock <i>Conium maculatum</i>, white stonecrop <i>Sedum album</i> and English stonecrop <i>Sedum anglicum</i>.</div><div>■ Introduced shrub: A small area adjacent to the eastern site wall and a small area within the timber yard within the south-east corner of the application site had been planted with non-native shrub species and cultivars including forsythia, cultivated rose <i>Rosa sp.</i>, golden honeysuckle <i>Lonicera x heckrottii</i>, <i>Olearia</i>, <i>fuchsia</i>, rosemary <i>Rosmarinus officinalis</i> and lilac <i>Syringa vulgaris</i>.</div></div> <div>All of the above habitats are comprised of common and widespread floral species with each habitat supporting a low level of species richness. However, given the urban/industrial context in which these habitats were recorded it is considered likely that these habitats may present localised ecological value. All of the above habitats are therefore assessed as having negligible importance.</div> <div><div>■ Bare Ground — Hardstanding: The majority of the application site surrounding the open water was bare ground comprising of hardstanding. Hard standing and bare ground areas on site are considered unlikely to support any species of conservation value and are therefore considered to be of negligible importance.</div><div>■ Buildings and Structures: There were nine buildings and three tunnel structures within the application site and a large brick sea wall (the River Mersey wall) forms the site’s western boundary. The buildings on site were not considered to offer any ecological value and are therefore assessed as having negligible importance. However, their importance for roosting bats and nesting birds is discussed in the following sections.</div></div> | Negligible | Detailed phase 1 habitat survey information is presented within Appendix 12.1, ES Volume III. |
| Open water | The centre of the application site was comprised of a large deep waterbody which leads into Sandon Half-Tide Dock from the north-west corner and into Nelson Dock from the south west corner. Evaluation of importance, and assessment of impacts upon this habitat are discussed separately within the aquatic ecology chapter — This habitat is therefore not discussed further within this chapter. | N/A | Please refer to Chapter 13 Aquatic Ecology of this volume of the ES. |
| Protected and Notable Species | | | |
| Breeding bird assemblage | <div>The breeding bird assemblage comprised 8 breeding bird 12 non-breeding species.</div> <div>The desk-top study returned eight bird species of note within 2km of the application site (but none from the application site itself). Such records include house sparrow <i>Passer domesticus</i>, song thrush <i>Turdus philomelos</i>, skylark <i>Alauda arvensis</i>, bullfinch <i>Pyrrhula pyrrhula</i>, dunnoek <i>Prunella modularis</i>, swift <i>Apus apus</i>, starling <i>Sturnus vulgaris</i> and peregrine falcon <i>Falco peregrinus</i>.</div> | Local | Detailed breeding bird survey information is presented within Appendix 12.1, ES Volume III. |

TERRESTRIAL ECOLOGY

| KEY RECEPTORS | DESCRIPTION | SENSITIVITY | FURTHER INFORMATION |
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Breeding bird surveys completed on the application site in 2017 and 2019 recorded a maximum of eight species breeding on the application site or within the survey area (400m radius). Table 12.1 summarises data recorded.

Table 12.1: Schedule 1, SPA and notable breeding bird species recorded breeding within the application site (+ 400m) during 2017 and 2019

| COMMON NAME | SCIENTIFIC NAME | STATUS* | NO OF BREEDING PAIRS 2017 | NO OF BREEDING PAIRS 2019 | LOCATION OF BREEDING PAIRS | PEAK COUNT OF INDIVIDUALS FOR 2017 AND 2019** |
|--------------------------|------------------------------|-----------------|---------------------------|---------------------------|---|---|
| Common Tern | <i>Sterna hirundo</i> | SPA, BoCC Amber | 1 | 1 | + 400m, 2017/2019 | 3 |
| Common Linnet | <i>Linaria cannabina</i> | BoCC Red | 0 | 1 | Within application site 2019 | 6 |
| Lapwing | <i>Vanellus vanellus</i> | SPA, BoCC Red | 0 | 1 | + 400m, 2019 | 1 |
| Lesser Black-backed Gull | <i>Larus fuscus</i> | SPA, BoCC Amber | 1 | 1 | Within application site 2017/2019 | 2 |
| Herring Gull | <i>Larus argentatus</i> | SPA, BoCC Red | 2 | 0 | Within application site 2017 | 79 |
| Oystercatcher | <i>Haematopus ostralegus</i> | SPA, BoCC Amber | 1 | 1 | Within application site 2017, + 400m 2019 | 7 |

* BoCC Categories:

Red list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.

Amber list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.

Green list species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed.

** The highest number of individual birds seen during any one visit across surveys undertaken in 2017 and 2019.

| | | | |
|---------------------------|---|---------------|--|
| Wintering bird assemblage | An aggregate of twenty-six bird species were recorded within the application site during the wintering bird surveys undertaken in 2016/17, with only one additional species recorded in the vicinity of the application site (400m radius). During surveys undertaken in 2018/19 an aggregate of twenty-one species were recorded within the application site, and a further five were recorded in the vicinity of the application site (400m radius). A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 12.2. | International | Detailed wintering bird survey information is presented within Appendix 12.1, ES Volume III. |
|---------------------------|---|---------------|--|

Table 12.2: Summary of wintering bird survey data – birds recorded within the application site and surrounding area (400m).

| COMMON NAME | SCIENTIFIC NAME | STATUS | PEAK COUNTS | | | |
|-------------------|-----------------------------------|-----------------|-------------|-------------|---------|-------------|
| | | | 2016/17 | | 2018/19 | |
| | | | ON SITE | WITHIN 400M | ON SITE | WITHIN 400M |
| Black-headed Gull | <i>Chroicocephalus ridibundus</i> | SPA, BoCC Amber | 44 | 103 | 104 | 232 |
| Canada Goose | <i>Branta canadensis</i> | BoCC Green | 20 | 16 | 18 | 24 |
| Carriion Crow | <i>Corvus corone</i> | BoCC Green | 3 | 1 | 2 | - |

TERRESTRIAL ECOLOGY

| KEY RECEPTORS | DESCRIPTION | | | | | | | SENSITIVITY | FURTHER INFORMATION |
|---------------|--------------------------|--------------------------------|-----------------|-----|-----|-----|-----|-------------|---------------------|
| | Common Gull | <i>Larus canus</i> | SPA, BoCC Amber | 1 | 150 | - | 21 | | |
| | Coot | <i>Fulica atra</i> | BoCC Green | - | - | 1 | 8 | | |
| | Cormorant | <i>Phalacrocorax carbo</i> | SPA, BoCC Green | 5 | 6 | 11 | 12 | | |
| | Dunnock | <i>Prunella modularis</i> | BoCC Amber | - | - | 1 | - | | |
| | Feral Pigeon | <i>Columba livia domestica</i> | BoCC Green | 206 | 50 | 159 | 8 | | |
| | Goldfinch | <i>Carduelis carduelis</i> | BoCC Green | 4 | - | - | 5 | | |
| | Great Black-backed Gull | <i>Larus marinus</i> | SPA, BoCC Amber | 2 | 10 | 1 | 1 | | |
| | Great Crested Grebe | <i>Podiceps cristatus</i> | SPA, BoCC Green | 1 | - | - | - | | |
| | Grey Heron | <i>Ardea cinerea</i> | BoCC Green | 1 | 3 | 1 | 1 | | |
| | Herring Gull | <i>Larus argentatus</i> | SPA, BoCC Red | 74 | 130 | 115 | 180 | | |
| | Kingfisher | <i>Alcedo atthis</i> | BoCC Amber | 1 | 1 | 1 | - | | |
| | Lesser Black-backed Gull | <i>Larus fuscus</i> | SPA, BoCC Amber | 5 | 10 | 7 | - | | |
| | Linnet | <i>Linaria cannabina</i> | BoCC Red | 30 | 6 | 20 | 14 | | |
| | Magpie | <i>Pica pica</i> | BoCC Green | 2 | - | 3 | 2 | | |
| | Mallard | <i>Anas platyrhynchos</i> | BoCC Amber | 2 | - | - | - | | |
| | Meadow Pipit | <i>Anthus pratensis</i> | BoCC Amber | 2 | - | - | 2 | | |
| | Moorhen | <i>Gallinula chloropus</i> | BoCC Green | 1 | - | 1 | 1 | | |
| | Mute Swan | <i>Cygnus olor</i> | BoCC Amber | 4 | 5 | 2 | 2 | | |
| | Oystercatcher | <i>Haematopus ostralegus</i> | SPA, BoCC Amber | 7 | 6 | 15 | 2 | | |
| | Peregrine | <i>Falco peregrinus</i> | BoCC Green | - | 1 | - | 1 | | |
| | Pied Wagtail | <i>Motacilla alba</i> | BoCC Green | 2 | 3 | 3 | 2 | | |
| | Robin | <i>Erithacus rubecula</i> | BoCC Green | 3 | - | - | 1 | | |
| | Rock Pipit | <i>Anthus petrosu</i> | BoCC Green | 1 | - | 1 | - | | |
| | Shelduck | <i>Tadorna tadorna</i> | SPA, BoCC Amber | 2 | 1 | 17 | 2 | | |
| | Starling | <i>Sturnus vulgaris</i> | BoCC Red | 300 | 1 | 156 | 90 | | |

TERRESTRIAL ECOLOGY

| KEY RECEPTORS | DESCRIPTION | | | | | | SENSITIVITY | FURTHER INFORMATION |
|---------------|-------------|---------------------------|------------|---|---|---|-------------|---------------------|
| | Turnstone | <i>Arenaria interpres</i> | BoCC Amber | 2 | - | - | - | |

Passage bird assemblage

A maximum of 24 species were recorded within the application site and surrounding 400m in the autumn 2017 and early spring 2018 and autumn 2019. A summary of the peak counts for each species recorded on site during each survey visit is provided in Table 12.3.

Local

Detailed bat survey information is presented within Appendix 12.1, ES Volume III.

Table 12.3: Summary of Passage bird survey data (peak counts in bold)

| SPECIES NAME | SCIENTIFIC NAME | STATUS | PEAK COUNT 2017/2018 ON APPLICATION SITE | PEAK COUNT 2017/2018 WITHIN 400M OF APPLICATION SITE | PEAK COUNT 2019 ON APPLICATION SITE | PEAK COUNT 2019 WITHIN 400M OF APPLICATION SITE |
|--------------------------|------------------------------------|-----------------|--|--|-------------------------------------|---|
| Black-headed Gull | <i>Choroicocephalus ridibindus</i> | SPA, BoCC Amber | 43 | - | 26 | 43 |
| Canada Goose | <i>Branta canadensis</i> | BoCC Green | 30 | 19 | 2 | 82 |
| Carriion Crow | <i>Corvus corone</i> | BoCC Green | 3 | - | 3 | - |
| Cormorant | <i>Phalacrocorax carbo</i> | SPA, BoCC Green | 3 | 10 | 6 | 5 |
| Dunnock | <i>Prunella modularis</i> | BoCC Amber | 1 | 2 | - | - |
| Feral Pigeon | <i>Columba livia domestica</i> | BoCC Green | 98 | - | 214 | 59 |
| Goldfinch | <i>Carduelis carduelis</i> | BoCC Green | 20 | 40 | 3 | 6 |
| Great Crested Grebe | <i>Podiceps cristatus</i> | SPA, BoCC Green | - | 2 | - | - |
| Great Tit | <i>Parus major</i> | BoCC Green | - | 2 | - | - |
| Grey Heron | <i>Ardea cinerea</i> | BoCC Green | 1 | - | - | - |
| Herring Gull | <i>Larus argentatus</i> | SPA, BoCC Red | 56 | - | 140 | 25 |
| Kingfisher | <i>Alcedo atthis</i> | BoCC Amber | 1 | - | 2 | - |
| Lesser Black-backed Gull | <i>Larus fuscus</i> | SPA, BoCC Amber | 24 | - | 1 | 2 |
| Linnet | <i>Linaria cannabina</i> | BoCC Red | 24 | 40 | 2 | 24 |
| Magpie | <i>Pica pica</i> | BoCC Green | 5 | - | 18 | 1 |
| Meadow Pipit | <i>Anthus pratensis</i> | BoCC Amber | 6 | 6 | - | 5 |
| Moorhen | <i>Gallinula chloropus</i> | BoCC Green | 1 | 1 | 4 | 1 |
| Mute Swan | <i>Cygnus olor</i> | BoCC Amber | - | 2 | 4 | 1 |

TERRESTRIAL ECOLOGY

| KEY RECEPTORS | DESCRIPTION | | | | | | | SENSITIVITY | FURTHER INFORMATION |
|---------------|---------------|------------------------------|-----------------|----|----|----|----|-------------|---------------------|
| | Oystercatcher | <i>Haematopus ostralegus</i> | SPA, BoCC Amber | 2 | 19 | 3 | 2 | | |
| | Pied Wagtail | <i>Motacilla alba</i> | BoCC Green | 9 | 5 | 1 | 2 | | |
| | Raven | <i>Corvus corax</i> | BoCC Green | 1 | - | - | - | | |
| | Ringed Plover | <i>Charadrius hiaticula</i> | SPA, BoCC Red, | 1 | - | - | - | | |
| | Robin | <i>Erithacus rubecula</i> | BoCC Green | 1 | - | 1 | - | | |
| | Shelduck | <i>Tadorna tadorna</i> | SPA, BoCC Amber | 13 | 4 | - | - | | |
| | Sparrowhawk | <i>Accipiter nisus</i> | BoCC Green | 1 | - | - | - | | |
| | Starling | <i>Sturnus vulgaris</i> | BoCC Red | 52 | - | 14 | 11 | | |
| | Wheatear | <i>Oenanthe oenanthe</i> | BoCC Green | 1 | - | - | 1 | | |

| | | | |
|------|--|-------|---|
| Bats | <p>Detailed bat survey data is presented within Appendix 12.1. Data obtained from Merseyside Biobank, RECORD and MAGIC data search returned 32 records of bats within 2km of the application site, of which 25 were records of roosts. The majority of the records are of common pipistrelle <i>Pipistrellus pipistrellus</i>, followed by unidentified bat species. There was one record of roosting noctule bats <i>Nyctalus noctula</i>. MAGIC returned no records of granted bat EPSLs within 2km of the application site, as of 24th July 2019.</p> <p>The buildings on site were appraised for their suitability to support roosting bats during an EA undertaken in June 2017 (Technical Appendix 12.1). The condition of these buildings has not changed since then and three buildings and the sea wall (River Mersey wall), were assessed in accordance with Bat Conservation Trust guidelines (2016) to have the following suitability to support roosting bats:</p> <ul style="list-style-type: none">■ Building B1 (Hydraulic Engine House (Grade II listed)) – Moderate potential; and■ Building B2, B5 and sea wall (River Mersey wall) – Low Potential. <p>All other buildings and features on site were assessed as forming negligible suitability to support roosting bats.</p> <p>During dusk emergence surveys completed in 2019, two common pipistrelle bats were recorded emerging from the northern elevation of building B1 (Hydraulic Tower) on site. A single common pipistrelle was recorded entering this building during dawn re-entry surveys. Due to the low number of bats recorded emerging/entering B1 (Hydraulic Tower) it is considered that this building supports a day roost - defined by BCT as: <i>‘a place where individual bats or small groups of male bats rest or shelter in the day but are rarely found by night in the summer’</i>.</p> <p>Due to very low numbers of common bat species roosting on site it is considered that the application site is of local importance for roosting bats only. The survey was updated in 2020 and recorded no roosting bats.</p> <p>The application site was considered to provide negligible potential for foraging and commuting bats due to a lack of habitat features which are likely to attract insects (WYG, 2017a; 2019).</p> <p>Activity levels on site were extremely low, with only occasional passes by individual bats during each emergence survey with no obvious patterns of behaviour. This confirms that the application site is of negligible importance for foraging and commuting bats.</p> | Local | Detailed bat survey information is presented within Appendix 12.1, ES Volume III. |
|------|--|-------|---|

12.3.1 Future Baseline

The only development surrounding the proposed site that will change the future baseline in the area is the committed Liverpool Waters Development. Based upon the ecology ES chapter for the Liverpool Waters Development (Liverpool Waters 2011) (14) the residual impact of the Liverpool Waters development (during construction phase only) upon relevant ecological receptors will be significant at the local level for breeding birds, and within the zone of influence for habitats such as ephemeral/short perennial, scattered scrub and tall ruderal. The residual effect for all other ecological receptors is considered to be not significant during construction and operational phase.

12.4 POTENTIAL SIGNIFICANT IMPACTS

| PHASE | DESCRIPTION | ADVERSE/BENEFICIAL |
|--------------|--|--------------------|
| Construction | International Designated Sites (SPA/Ramsar) - Permanent loss of functionally liked habitat used by qualifying features of designated sites | Adverse |

TERRESTRIAL ECOLOGY

| PHASE | DESCRIPTION | ADVERSE/BENEFICIAL |
|--------------|---|--------------------|
| Construction | International Designated Sites (SPA/Ramsar) - Habitat degradation - water quality impacts as a result of pollution events | Adverse |
| Construction | International Designated Sites (SPA/Ramsar) - Disturbance of qualifying features — visual and auditory disturbance | Adverse |
| Construction | International Designated Sites (SPA/Ramsar) - Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat | Adverse |
| Construction | International Designated Sites (SPA/Ramsar) - Habitat degradation — effects on water quality during dock infill preparation — raking of dock prior to infill (decrease in dissolved oxygen) | Adverse |
| Construction | International Designated Sites (SPA/Ramsar) - Habitat degradation - deposition of waste/litter | Adverse |
| Construction | Nationally Designated Sites (SSSI) - Permanent loss of functionally liked habitat used by notifiable features of designated sites | Adverse |
| Construction | Breeding birds - Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site | Adverse |
| Construction | Wintering birds - Permanent loss of foraging and wintering habitat used by wintering bird assemblage on site | Adverse |
| Construction | Passage Birds - Permanent loss of foraging and resting habitat used by passage bird assemblage on site | Adverse |
| Construction | Bats - Permanent loss of roosting habitat | Adverse |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) — Potential bird strike affecting qualifying/notifiable feature | Adverse |
| Operation | International Designated Sites (SPA/Ramsar) - Habitat degradation - deposition of waste/litter | Adverse |

12.5 DESIGN INTERVENTIONS

| DESIGN INTERVENTION | DESCRIPTION | REASON FOR INTERVENTION | FURTHER INFORMATION |
|--|---|--|--|
| Noise and vibration measures during construction phase | On elevations that do not have the existing walls, a 2.4m solid hoarding around the site perimeter will be used. Piling will use bored or CFA piles, rather than driven, to minimise noise and vibration. Participation in Considerate Constructors Scheme (with min score of 40). | Increased road noise levels from vehicles. Increased noise and vibration levels from plant during general demolition and construction works. | Chapter 5 Construction Methodology, ES Volume II |
| Dust / Local air quality measures during construction phase | Erect solid screens or barriers around dusty activities. Machinery and dust-causing activities are located away from receptors. Fully enclose site where there is high potential for dust production. Avoid site run-off water or mud — wheel washing options if required. Keep site fencing, barriers and scaffolding clean using wet methods. Avoidance of prolonged stockpiling. Remove materials with potential to produce dust from site. Minimise drop heights from conveyors, loading shovels and hoppers, etc. Ensure effective water suppression is used during demolition and other dusty activities. | Generation of windblown dust nuisance from ground surfaces, stockpiles, vehicles, workforces and cutting and grinding of materials. Generation of exhaust emissions from lorries and plant delivering and removing materials including dust and particulates which have the potential to impact upon local air quality. | Chapter 5 Construction Methodology, ES Volume II |
| Waste / Sustainability measures during construction phase | Waste will be managed in accordance with a Resource Management Plan (RMP). The plan will ensure that the requirements of relevant legislation are met, and volumes generated are minimised. | Waste generation and its appropriate disposal. | Chapter 5 Construction Methodology, ES Volume II |
| Traffic measures during construction phase | Logistics management will help ensure traffic levels and routes are effectively managed. Unpaved site road lengths will be minimised to reduce potentially dusty material. Ensure all vehicles switch off engines when stationary. Avoid use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment. All vehicles entering/leaving site are covered to prevent escape of materials during transport. All vehicles entering/leaving site are covered to prevent escape of materials during transport. All marine won aggregate will be transported to site via dredger to reduce impacts on local traffic. | Traffic congestion caused by site traffic and an increase in heavy goods vehicle (HGV) movements. Traffic disruptions from abnormal or hazardous loads. Transfer of mud and material from vehicles onto the public highway, creating pollution hazards. | Chapter 5 Construction Methodology, ES Volume II |
| Storage of fuels and construction materials during construction phase | Appropriate COSHH and fuel storage facilities (bunded). Robust spillage procedures and sufficient clean-up equipment available on site to promptly address any spillages. | Accidental spills and discharges to drains or docks which may create pollution hazards. | Chapter 5 Construction Methodology, ES Volume II |
| Hazardous materials and contaminated land measures during construction phase | Appropriate COSHH and fuel storage facilities (bunded). Robust spillage procedures and sufficient clean-up equipment available on site to promptly address any spillages. | Accidental spills and discharges to drains or docks which may create pollution hazards. | Chapter 5 Construction Methodology, ES Volume II |
| Water quality measures during construction phase | Cabins will be used as temporary accommodation and connected to the existing clean water and foul drainage systems maintained. | Water demand for construction activities and domestic use by the contractor (however, this is anticipated to be low). Generation of domestic foul effluent by contractors. | Chapter 5 Construction Methodology, ES Volume II |
| Water, resources, drainage and flood risk measures during construction phase | Plan excavations and placement of materials such that surface flow paths will not be blocked, or new routes created. The use of cut-off ditches, traps, bunds can be used to safely direct any flows within the site. Onsite treatment or offsite disposal of concrete washout waters. | Rainwater impacts during construction, flooding and contamination. | Chapter 5 Construction Methodology, ES Volume II |

TERRESTRIAL ECOLOGY

| DESIGN INTERVENTION | DESCRIPTION | REASON FOR INTERVENTION | FURTHER INFORMATION |
|--|---|--------------------------|--|
| Ecology measures during construction phase | Approved control methods for water abstraction and discharge activities associated with dredging (exact details to be confirmed by EA and or Peel Ports). | Risks identified in EIA. | Chapter 5 Construction Methodology, ES Volume II |
| | Consideration of the use of biodegradable oils in plant working near water. | | |
| | Removal of fish from dock prior to filling. | | |
| | Protection of other ecological receptors on and off site. Management of invasive species. | | |

12.6 ASSESSMENT PRE-MITIGATION (INCLUDING DESIGN INTERVENTIONS)

12.6.1 Proposed Development Scenario

Potential effects as a result of construction and operational phase are included in the table below, all effects that will not result in a significant effect are excluded from this table but are presented within the Biodiversity report, provided in Appendix 12.1, ES Volume III.

| PHASE | RECEPTOR(S) AFFECTED | IMPACT | SIGNIFICANCE AND NATURE OF EFFECT | FURTHER MITIGATION PROPOSED? | FURTHER INFORMATION |
|--------------|--|---|--|------------------------------------|-----------------------------|
| Construction | International Designated Sites (SPA/Ramsar) | Permanent loss of functionally linked habitat used by qualifying features of designated sites | Significant at the international level | Yes | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - water quality impacts as a result of pollution events | Significant at the international level | No — refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Disturbance of qualifying features — visual and auditory disturbance | Significant at the international level | No— refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat | Significant at the international level | No— refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation — effects on water quality during dock infill preparation — raking of dock prior to infill (decrease in dissolved oxygen) | Significant at the international level | No— refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - deposition of waste/litter | Significant at the international level | No— refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | Nationally Designated Sites (SSSI) | Permanent loss of functionally linked habitat used by notifiable features of designated sites | Significant at the national level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Breeding birds | Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site | Significant at the local level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Wintering birds | Permanent loss of foraging and wintering habitat used by wintering bird assemblage on site | Significant at the International level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Passage Birds | Permanent loss of foraging and resting habitat used by passage bird assemblage on site | Significant at the local level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Bats | Permanent loss of roosting habitat | Significant at the local level | Yes | Section 12.9, Appendix 12.1 |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Potential bird strike affecting qualifying/notifiable feature | Significant at the international level | Yes | Section 12.9, Appendix 12.1 |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Habitat degradation - deposition of waste/litter | Significant at the international level | No— refer to design interventions | Section 12.9, Appendix 12.1 |

12.6.2 Proposed Development + Liverpool Waters Scenario

| PHASE | RECEPTOR(S) AFFECTED | IMPACT | SIGNIFICANCE AND NATURE OF EFFECT | FURTHER MITIGATION PROPOSED? | FURTHER INFORMATION |
|--------------|---|---|--|------------------------------|-----------------------------|
| Construction | International Designated Sites (SPA/Ramsar) | Permanent loss of functionally linked habitat used by qualifying features of designated sites | Significant at the international level | Yes | Section 12.9, Appendix 12.1 |

TERRESTRIAL ECOLOGY

| PHASE | RECEPTOR(S) AFFECTED | IMPACT | SIGNIFICANCE AND NATURE OF EFFECT | FURTHER MITIGATION PROPOSED? | FURTHER INFORMATION |
|--------------|--|---|--|------------------------------------|-----------------------------|
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - water quality impacts as a result of pollution events | Significant at the international level | No – refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Disturbance of qualifying features – visual and auditory disturbance | Significant at the international level | No– refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat | Significant at the international level | No– refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen) | Significant at the international level | No– refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - deposition of waste/litter | Significant at the international level | No– refer to design interventions | Section 12.9, Appendix 12.1 |
| Construction | Nationally Designated Sites (SSSI) | Permanent loss of functionally linked habitat used by notifiable features of designated sites | Significant at the national level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Breeding birds | Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site | Significant at the local level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Wintering birds | Permanent loss of foraging and wintering habitat used by wintering bird assemblage on site | Significant at the international level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Passage Birds | Permanent loss of foraging and resting habitat used by passage bird assemblage on site | Significant at the local level | Yes | Section 12.9, Appendix 12.1 |
| Construction | Bats | Permanent loss of roosting habitat | Significant at the local level | Yes | Section 12.9, Appendix 12.1 |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Potential bird strike affecting qualifying/notifiable feature | Significant at the international level | Yes | Section 12.9, Appendix 12.1 |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Habitat degradation - deposition of waste/litter | Significant at the international | No – refer to design interventions | Section 12.9, Appendix 12.1 |

12.7 MITIGATION AND ENHANCEMENT MEASURES

| PHASE | POSSIBLE EFFECT BEING MITIGATED | MITIGATION MEASURE | HOW SECURED / TRIGGERED | FURTHER INFORMATION |
|--------------|--|---|-------------------------|---|
| Construction | Loss of habitat supporting qualifying/notifiable features of designated sites. | Provision of 2 floating pontoons in accordance with with Liverpool Waters SEMP (ARUP 2020) within Nelson Dock to the south of site. The specification of these is detailed in the Construction Management Plan (Appendix 4.1, ES Volume III). | Planning condition | Mitigation proposed for this project is presented within Section 12.11, Appendix 12.1, ES Volume III. |
| Construction | Breeding birds | Removal of vegetation outside of bird breeding season. Provision of alternative nesting habitat such as 2 floating rafts in surrounding dock network | Planning condition | |
| Construction | Wintering birds | Provision of 2 floating pontoons in neighbouring docks | Planning condition | |
| Construction | Passage birds | Provision of 2 floating pontoons in neighbouring docks | Planning condition | |
| Construction | Bats | Provision of alternative roost location subject to Bat Mitigation Class Licence. Supervision of works which affect roost space. Application for EPSL. Provision of additional roosts. | Planning condition | |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Use of non-reflective glass or installation of patterning, fritting, UV glass or netting on exterior façade on the southern, northern and western elevation of the stadium to reduce transparency and reflective value of high risk glazed areas. | Planning condition | |

12.8 ASSESSMENT POST-MITIGATION

TERRESTRIAL ECOLOGY

12.8.1 Proposed Development Scenario

| PHASE | RECEPTOR(S) AFFECTED | IMPACT | SIGNIFICANCE AND NATURE OF EFFECT |
|--------------|--|---|-----------------------------------|
| Construction | International Designated Sites (SPA/Ramsar) | Permanent loss of functionally linked habitat used by qualifying features of designated sites | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - water quality impacts as a result of pollution events | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Disturbance of qualifying features — visual and auditory disturbance | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation — effects on water quality during dock infill preparation — raking of dock prior to infill (decrease in dissolved oxygen) | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - deposition of waste/litter | Not significant |
| Construction | Nationally Designated Sites (SSSI) | Permanent loss of functionally linked habitat used by notifiable features of designated sites | Not significant |
| Construction | Breeding birds | Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site | Not significant |
| Construction | Wintering birds | Permanent loss of foraging and wintering habitat used by wintering bird assemblage on site | Not significant |
| Construction | Passage Birds | Permanent loss of foraging and resting habitat used by passage bird assemblage on site | Not significant |
| Construction | Bats | Permanent loss of roosting habitat | Not significant |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Potential bird strike affecting qualifying/notifiable feature | Not significant |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Habitat degradation - deposition of waste/litter | Not significant |

12.8.2 Proposed Development + Liverpool Waters Scenario

| PHASE | RECEPTOR(S) AFFECTED | IMPACT | SIGNIFICANCE AND NATURE OF EFFECT |
|--------------|--|---|-----------------------------------|
| Construction | International Designated Sites (SPA/Ramsar) | Permanent loss of functionally linked habitat used by qualifying features of designated sites | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - water quality impacts as a result of pollution events | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Disturbance of qualifying features — visual and auditory disturbance | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation — effects on water quality during dock infill preparation — raking of dock prior to infill (decrease in dissolved oxygen) | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - deposition of waste/litter | Not significant |
| Construction | Nationally Designated Sites (SSSI) | Permanent loss of functionally linked habitat used by notifiable features of designated sites | Not significant |
| Construction | Breeding birds | Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site | Not significant |
| Construction | Wintering birds | Permanent loss of foraging and wintering habitat used by wintering bird assemblage on site | Not significant |
| Construction | Passage Birds | Permanent loss of foraging and resting habitat used by passage bird assemblage on site | Not significant |
| Construction | Bats | Permanent loss of roosting habitat | Not significant |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Potential bird strike affecting qualifying/notifiable feature | Not significant |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Habitat degradation - deposition of waste/litter | Not significant |

12.9 ECOLOGY: INTER-DEVELOPMENT CUMULATIVE SCHEME EFFECTS

A total of 53 other developments have been identified as part of the cumulative impact assessment (see Chapter 2 for further details of these developments). Detailed assessment of all cumulative schemes is provided in Appendix 12.1, ES Volume III.

| CUMULATIVE SCHEME | SCHEME DESCRIPTION | POTENTIAL FOR CUMULATIVE EFFECTS? | CONSIDERED WITHIN ASSESSMENT? |
|----------------------------|---|-----------------------------------|-------------------------------|
| Plot C02, Liverpool Waters | New cruise liner terminal and a vehicular link span bridge and pedestrian bridge/ walkways. | | Yes |

TERRESTRIAL ECOLOGY

| CUMULATIVE SCHEME | SCHEME DESCRIPTION | POTENTIAL FOR CUMULATIVE EFFECTS? | CONSIDERED WITHIN ASSESSMENT? |
|--|---|---|-------------------------------|
| Wirral Waters | Regeneration of East Float, Wirral waters | Ecological Assessments for these cumulative schemes have determined Significant effects upon relevant ecological receptors during construction and/or operation phases. | Yes |
| Quay Central", Plot C04 and "Park Central" C06, land to west of Waterloo Road, Central Docks | To erect 2 residential blocks of 237 PRS apartments with gym, parking and cycle spaces, office and ground floor commercial space. | | Yes |
| New Merseyside Police Headquarters, 30 Grosvenor Street | New 4 storey Police Headquarters and office development with associated 2 storey Annex building. | | Yes |
| Royal Liverpool University Hospital, Prescott Street | Redevelopment to provide a hospital and related healthcare facilities comprising core hospital buildings, energy centre, future healthcare buildings. | | Yes |
| LJMU Campus, Copperas Hill/ Brownlow Hill | To erect 5 storey Student Life building and 2 storey sports building with retail and cafe uses | | Yes |
| Renshaw Hall, Benson Street | Redevelop with 292 student bedrooms. | | Yes |
| "The Address at One Wolstenholme Square", 18-24 Seel Street | 11 storey blocks with 200 luxury apartments, spa, pool, and ground floor commercial space. | | Yes |
| "Infinity", Leeds Street/Pall Mall | Three towers of 39, 33 and 27 floors to include 1,002 apartments. | | Yes |
| 9-27 Freemasons Row | 11 to 15 storey blocks with 656 PRS apartments above ground floor commercial space and. | | Yes |
| "Liverpool Waters" | The comprehensive redevelopment of up to 60 hectares of former dock land comprising a maximum of 305,479sqm office space, 752,675 sqm of residential space accommodating 9,152 homes, 69,735 sqm of hotel and conference facilities, 24,696 sqm comparison retailing, 7,768 sqm convenience retailing, 8,588 sqm financial and professional services, 33,638 sqm cafes and restaurants, 20,210 sqm drinking establishments, 9,764 sqm of non-residential institutions, 33,299 sqm assembly and leisure, and public open spaces. | | Yes |
| Liverpool Cruise Liner Terminal, Princes Dock | New cruise liner terminal and a vehicular link span bridge and pedestrian bridge/ walkways. | | Yes |
| Southern Warehouse, Stanley Dock, Regent Road | Conversion of warehouse to 256 bedroom apart-hotel, restaurants, assembly/leisure plus carparking. | | Yes |
| Conversion of former Tobacco Warehouse, Stanley Dock | Conversion to create 538 apartments; new 13th floor level of single storey penthouse apartments, public exhibition space, offices & basement car parking | | Yes |
| 20F/1203 -Vacant Land, Plot A06 William Jessop Way Princes Dock Liverpool L3 1QP | To erect residential tower (C3) consisting of 278 apartments, ground floor commercial (A1/A3/A4), residential amenity areas, cycle and vehicle parking with associated hard and soft Landscaping | | Yes |
| 19F/1038 —Plot 11, Land Off Princes Road Princes Dock Liverpool | To erect 10 storey hotel (C1) including lobby, bar, cafe, restaurant, business suite at ground floor level, plant enclosure at roof level, visitor and coach parking, taxi pick-up and drop off point, hard and soft landscaping. | | Yes |
| 20F/0217 —Land bounded by Blackstone Street, Fulton Street and Regent Road Liverpool 5 | Demolition and re-development of site to provide 9 storey hotel with 9 storey multi-storey car park with associated access and servicing. | | Yes |
| 18F/3231 - Isle of Man Ferry Terminal | Construction of new Ferry Terminal to replace existing ferry landing stage located at Pier Head | | Yes |
| 17F/2628 - Liverpool City Centre Connectivity Phase 2 — Northern Link Road | Construction of road scheme | | Yes |
| 18F/1419 - Southern Link Road | Construction of road scheme | | Yes |
| 19F/1745 - District Heating Network at Central Docks | Development of a district heating network | | Yes |
| 20F/1947 2-6 Lightbody Street, Liverpool | application to erect 210 residential units | | Yes |

TERRESTRIAL ECOLOGY

| CUMULATIVE SCHEME | | SCHEME DESCRIPTION | POTENTIAL FOR CUMULATIVE EFFECTS? | CONSIDERED WITHIN ASSESSMENT? |
|---|--|--|-----------------------------------|-------------------------------|
| 20NM/1801 - Liverpool Waters Non material amendment | | amendment to LW outline consent –adjusting boundary of parcel 3a/3b, re-orientate plot C01 and reducing heights of plot C01 from 12m and 44m, down to a single 11.3m | | Yes |

| PHASE | RECEPTOR(S) | POTENTIAL CUMULATIVE EFFECT | ADDITIONAL MITIGATION (IF REQUIRED) | RESIDUAL EFFECT |
|--------------|--|---|-------------------------------------|-----------------|
| Construction | International Designated Sites (SPA/Ramsar) | Permanent loss of functionally linked habitat used by qualifying features of designated sites | Yes, see Section 12.7 above | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - water quality impacts as a result of pollution events | No – refer to design interventions | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Disturbance of qualifying features – visual and auditory disturbance | No – refer to design interventions | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Mobilisation of contaminated material via surface water run off into designated sites or functionally linked habitat | No – refer to design interventions | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation – effects on water quality during dock infill preparation – raking of dock prior to infill (decrease in dissolved oxygen) | No – refer to design interventions | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Habitat degradation - deposition of waste/litter | No – refer to design interventions | Not significant |
| Construction | International Designated Sites (SPA/Ramsar) | Disturbance of qualifying features – visual and auditory disturbance | No – refer to design interventions | Not significant |
| Construction | Nationally Designated Sites (SSSI) | Permanent loss of functionally linked habitat used by notifiable features of designated sites | Yes, see Section 12.7 above | Not significant |
| Construction | Breeding birds | Permanent loss of foraging and potential nesting habitat used by breeding bird assemblage on site | Yes, see Section 12.7 above | Not significant |
| Construction | Wintering birds | Permanent loss of foraging and wintering habitat used by wintering bird assemblage on site | Yes, see Section 12.7 above | Not significant |
| Construction | Passage Birds | Permanent loss of foraging and resting habitat used by passage bird assemblage on site | Yes, see Section 12.7 above | Not significant |
| Construction | Bats | Permanent loss of roosting habitat | Yes, see Section 12.7 above | Not significant |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Potential bird strike affecting qualifying/notifiable feature | Yes, see Section 12.7 above | Not significant |
| Operation | Statutory Designated Sites (SPA/Ramsar and SSSI) | Habitat degradation - deposition of waste/litter | No – refer to design interventions | Not significant |

12.10 REFERENCES

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