



Habitats Regulations Screening Assessment & Application for SSSI Assent Relating to Beach Management Operations at Wirral Beaches

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1	Draft Submission for client comment	CS	CC	11/03/16

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Job No Reference Date Created March 2016

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Table of Contents

1	Introduction.....	1
2	Methodology	4
3	Designations.....	6
4	Description of the Beach Management Operations.....	13
5	Potential Effects.....	15
6	Habitat Regulations Assessment Screening Assessment.....	18
7	In Combination Assessment.....	27
8	Assessment of Potentially Damaging Operations.....	29
9	Conclusion.....	34
	Figures	35
	Appendix A	36
	Appendix B	37

Environment

1 Introduction

1.1 Background

Wirral Borough Council is proposing to undertake beach management operations at West Kirby, Hoylake, Wallasey and New Brighton beaches (see Figure 1). These operations are:

- Spraying with Roundup glyphosate based weed killer;
- Raking; and
- Removal of windblown sand from the sea wall.

Wirral Borough Council has had previous approval from Natural England and the Environmental Agency to undertake similar beach management operations (spraying, raking and removal of sand accumulation) at Hoylake beach. This covered the months of April to November from 2010 until 2015 (See Appendix A). This application seeks to renew this approval, whilst also extending the raking operations to West Kirby, Wallasey and New Brighton beaches.

Under the European Directive 92/43/EEC (The Habitats Directive), Wirral Borough Council is required to undertake a Habitats Regulations Assessment (HRA) to ascertain whether beach management operations at West Kirby, Hoylake, Wallasey and New Brighton have the potential to result in likely significant effects on any European Sites (detailed in Chapter 3) within the study area and/or adjacent areas.

This report also includes an application for assent under S28H of the Wildlife and Countryside Act (WCA) 1981 (as amended) to carry out the beach management operations within the Dee Estuary Site of Special Scientific Interest (SSSI), North Wirral Foreshore SSSI and Mersey Narrows SSSI.

1.2 Requirement for the Management Operations

Spraying of herbicide on areas of Common Cord Grass (*Spartina anglica*) is undertaken to control the spread of the species to preserve the designated amenity beach area. If left uncontrolled the spread of the species may result in a loss of open habitat for overwintering waders, an interest feature for both the Dee Estuary Special Protection Area (SPA) and Ramsar (Wetland of International Importance). The Dee Estuary is also designated as a Special Area of Conservation (SAC), and the spread of common cord grass may affect the distribution of SAC qualifying habitats. Regular beach raking is undertaken to provide a clean, litter free area of beach for amenity purposes.

Windblown sand from the sea wall at Hoylake Beach is removed and used to manage the dune system at West Kirby – part of the Red Rocks SSSI. Accretion of sand over the entire site leads to a build up of windblown sand against the sea defence wall. The action of the wind also results in sand deposition over the designated highway and beyond into adjacent private residential housing. This causes a hazard to road users and an inconvenience to home owners.

Further details of each of these management operations is provided in Chapter 4

1.3 Habitats Directive

European Directive 92/43/EEC on the 'Conservation of Natural Habitats and Wild Fauna and Flora' (referred to as the 'Habitats Directive') and Council Directive 2009/147/EC on the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC on the conservation of wild birds - referred to as the 'Birds Directive'), provide legal protection for habitats and species of European importance. Article 2 of the Habitats Directive requires the maintenance or restoration of habitats and species of European Community interest at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest. In particular, Article 6 (3) of the Directive states:

"Any plan or project not directly connected with, or necessary to, the management of the [European] site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives".

Environment

The beach management operations are for amenity purposes and are not directly connected with or necessary to the management of a European Site.

The directives above are transposed into domestic law by the Conservation of Habitats and Species Regulations 2010 (England and Wales) (as amended); these are referred to as the 'Habitats Regulations'.

The Habitats Regulations enable the protection of sites that host habitats and species of European Importance. These sites are listed below and are collectively referred to as 'European Sites':

- Special Areas of Conservation (SAC);
- Special Protection Areas (SPA); and
- Ramsar Sites.

Ramsar Sites

Ramsar sites are wetlands of international importance that have been designated under the Ramsar Convention (1971). Sites are selected for their international significance relating to all ecology, botany, zoology, limnology or hydrology wetland components. The designation recognises the importance of wetlands as economic, social and environmental entities and the need to conserve them.

Special Protection Areas

Special Protection Areas (SPA) are strictly protected sites that have been implemented to protect rare and vulnerable bird species and their habitats. They are classified in accordance with the European Birds Directive (79/409/EEC) and aim to safeguard bird species and populations that are listed in Annexes I and II of the Directive..

Part II, Paragraph 10 of The Conservation of Habitats and Species Regulations 2010 (England and Wales) provide a definition of the term 'European Site'. European Sites include SAC and SPA sites, as well as candidate / proposed sites (cSAC and pSPA) which are being consulted on or are pending a European Commission decision. However, the Habitats Regulations do not provide statutory protection for pSPAs or to cSACs before they are agreed with the European Commission. For the purpose of considering development proposals and their likely impacts on such sites, as a matter of policy, the UK Government wishes those pSPAs and cSACs that have been included in a list sent to the European Commission, to be considered in the same way as if they have already been classified or designated.

Special Areas of Conservation

Special Areas of Conservation (SAC) are high quality conservation sites that have been given strict protection under the European Habitats Directive (92/43/EEC). These important sites are selected to conserve rare and vulnerable animals, plants and habitats (excluding birds) that are listed in Annexes I and II of the Directive (as amended).

1.4 HRA Stages

It is generally accepted that a staged approach should be followed for a HRA. This approach is outlined in a number of guideline documents, including The Habitats Regulations Assessment Handbook 2013 (as amended) (David Tyldesley Associates). Table 1 illustrates the steps involved in the HRA process.

Environment

Table 1: HRA Process

Stages / Tasks	Steps
Screening Assessment	Step 1 – Management Test – Is the Project directly connected within or necessary to site management for nature conservation?
	Step 2 – Likely Significant Effects (LSE) Test – <i>Is the Project likely to have a significant effect on the internationally important interest features of the site, alone or in-combination with other projects?</i>
Appropriate Assessment	Step 3 - Assess the implications of the effects of the Project for the site's conservation objectives, consult Natural England and, if appropriate the general public.
	Step 4 – Integrity Test - can it be ascertained that the Project will not adversely affect the integrity of the site? Would compliance with conditions or other restrictions such as planning obligations enable it to be ascertained that the Project would be not adversely affect the integrity of the site?

1.5 Application for SSSI Assent

Under the WCA 1981 and subsequent amending legislation¹, the government has a duty to notify land as a SSSI which is of special interest by reason of any of its flora, fauna, geological or physiographical features.

In this case, SSSIs are designated by Natural England and the designation is primarily to identify those areas worthy of preservation. An SSSI is given certain protection against damaging operations, and any such operations must be authorised by Natural England.

The WCA Act requires owners or occupiers of SSSIs to apply to Natural England to seek consent to carry out operations that may damage the special interest of the site. Where public bodies such as Wirral Borough Council request to carry out operations on a SSSI which have been identified as potentially damaging, then assent under 28H of the Act is required.

Operations requiring Natural England's consent (formerly known as 'operations likely to damage the special interest' (OLDs) or 'potentially damaging operations' (PDOs)) are listed in the notification documents of each SSSI and are relevant to the notified features within the site.

¹ The Wildlife & Countryside Act was amended by the Countryside Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006

Environment

2 Methodology

2.1 HRA Methodology

The principal aim of this section is to detail the methodology used to identify if the beach management operations are expected to result in a likely significant effect (LSE) upon any of the European Sites (Step 2), identified in Chapter 3. If insufficient information is available to make a judgment without there being reasonable doubt, a precautionary approach is adopted, which assumes that a significant effect is possible, and therefore Appropriate Assessment necessary.

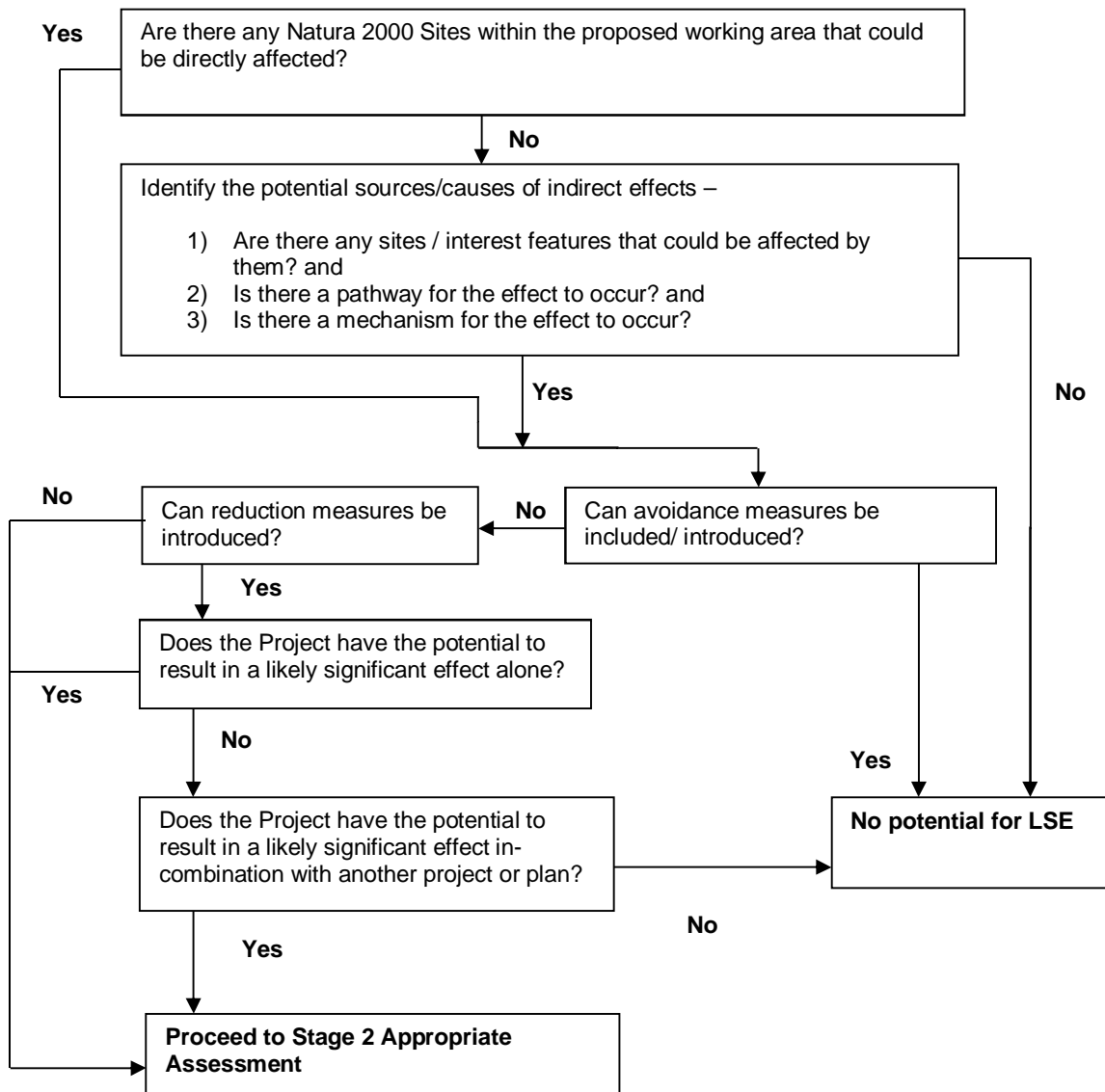
Stage 1 Screening Methodology

The screening stage considers whether there is likely to be a significant effect. In order to do this, the methodology adopted uses the conceptual model of sources, pathways and receptors. Each of these elements is considered, and used to screen out/ in sources, pathways and receptors.

When screening sites and interest features in or out of the appropriate assessment stage it must be established whether there is a potential pathway between possible causes of effects and the features of the European sites. Where a project has no sources of effects, or there are no pathways via which the effects could impact upon features, , the interest feature/ site is not considered any further.

Whilst screening constitutes the first stage of the overall HRA process, as detailed in Table 1, there are a number of sub-stages which are followed and reported upon in order to clearly demonstrate how conclusions have been reached; these are illustrated in the following figure.

Environment



2.2 Application for Assent Methodology

As part of the application for assent from Natural England there is a requirement to determine whether the works proposed are likely to damage the SSSI. Operations requiring Natural England’s consent (ORNEC) are listed on the notification documents of each SSSI and are relevant to the notified features within the site.

This assessment will consider the list of ORNECs against the works proposed and the qualifying features in order to determine whether damage to the SSSI is considered likely.

Environment

3 Description of European Sites and SSSIs

3.1 Introduction

There are 2 Ramsars, 4 SPAs, 1 SACs, 3 SSSIs situated within the study area. Details and location of the sites are listed in Table 2-5 below and are shown on Figure 6. The beach management operations will not result in any operational emissions nor do they include proposals for any structures which will interfere with migratory routes therefore it has no potential to affect sites remote from the activity areas.

Environment

Table 2: Ramsar Sites Located Within the Beach Management Operations Area

Name of Site, Location and Area (ha)	Qualifying Features	Conservation Objectives	Threats to Site Integrity
<p>The Dee Estuary Ramsar SJ 211 812 14303 ha</p>	<p>Ramsar Criterion 1: <i>Contains a representative, rare, or unique example of a natural or near-natural wetland type</i></p> <ul style="list-style-type: none"> • Extensive intertidal mud and sand flats with large expanses of saltmarsh towards the head of the estuary. Habitats Directive Annex I features present include: <ul style="list-style-type: none"> ○ Estuaries ○ Mudflats and sandflats not covered by seawater at low tide ○ Annual vegetation of drift lines ○ Vegetated sea cliffs of the Atlantic and Baltic coasts ○ <i>Salicornia</i> and other annuals colonising mud and sand ○ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) ○ Embryonic shifting dunes ○ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") ○ Fixed dunes with herbaceous vegetation ("grey dunes") ○ Humid dune slacks <p>Ramsar Criterion 2: supports breeding colonies of the vulnerable Natterjack Toad (<i>Epidalea calamita</i>)</p> <p>Ramsar Criterion 5: <i>Assemblages of waterfowl of international importance.</i></p> <p>Ramsar Criterion 6: <i>Species/populations occurring at levels of international importance.</i></p> <ul style="list-style-type: none"> • Common shelduck (<i>Tadorna tadorna</i>) • Eurasian oystercatcher (<i>Haematopus ostralegus</i>) • Eurasian curlew (<i>Numenius arquata</i>) • Common redshank (<i>Tringa totanus</i>) • Eurasian teal (<i>Anas crecca</i>) • Northern pintail (<i>Anas acuta</i>) • Grey plover (<i>Pluvialis squatarola</i>) • Red knot (<i>Calidris canutus</i>) • Dunlin (<i>Calidris alpina</i>) • Black-tailed godwit (<i>Limosa limosa</i>) • Bar-tailed godwit (<i>Limosa lapponica</i>) 	<p>None</p>	<p>Introduction/invasion of non-native animal and plant species.</p> <p>Pollution – industrial waste.</p> <p>General disturbance from human activities.</p> <p>Overfishing.</p> <p>Transport infrastructure development.</p> <p>There is an ongoing situation with dredging at Mostyn Dock which has been deemed likely to cause significant effect to the European Marine Site.</p>
<p>Mersey Narrows and North Wirral Foreshore Ramsar 2078 ha</p>	<p>Ramsar Criterion 4: Regularly supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.</p> <ul style="list-style-type: none"> • Common Tern (<i>Sterna hirundo</i>) • Little Gull (<i>Hydrocoloeus minutus</i>) <p>Ramsar Criterion 5: Regularly supports 20,000 or more waterbirds.</p> <p>Ramsar Criterion 6: Regularly supports 1% of the individuals in the populations of the following species or subspecies of waterbird in any season:</p> <ul style="list-style-type: none"> • Knot (<i>Calidris canutus</i>) • Bar-tailed Godwit (<i>Limosa lapponica</i>) 	<p>Ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the wise use of wetlands across the UK, by maintaining or restoring:</p> <ul style="list-style-type: none"> • the extent and distribution of qualifying habitats and habitats of qualifying species; • the structure and function of qualifying habitats and habitats of qualifying species; • the supporting processes on which qualifying habitats and habitats of qualifying species rely; and • the populations of qualifying species the distribution of qualifying species within the site. 	<p>Unspecific development urban use</p> <p>Recreation/ tourism disturbance</p> <p>Vegetation succession</p>

Environment

<p>Mersey Estuary Ramsar SJ 451 800 5023.35ha</p>	<p>Ramsar criterion 5: <i>Assemblages of waterfowl of international importance.</i></p> <p>Ramsar criterion 6: <i>Species/populations occurring at levels of international importance.</i></p> <p>Species with peak counts in spring</p> <ul style="list-style-type: none"> • Common shelduck (<i>Tadorna tadorna</i>) • Black-tailed godwit (<i>Limosa limosa</i>) • Common redshank (<i>Tringa totanus</i>) <p>Species with peak counts in winter</p> <ul style="list-style-type: none"> • Eurasian teal (<i>Anas crecca</i>) • Northern pintail (<i>Anas acuta</i>) <p>Dunlin (<i>Calidris alpina</i>)</p>	<p>Ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the wise use of wetlands across the UK, by maintaining or restoring:</p> <ul style="list-style-type: none"> • the extent and distribution of qualifying habitats and habitats of qualifying species • the structure and function of qualifying habitats and habitats of qualifying species • the supporting processes on which qualifying habitats and habitats of qualifying species rely • the populations of qualifying species, and, the distribution of qualifying species within the site 	<p>No adverse factors have been reported affecting the site's ecological character.</p>
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Table 3: SPAs Within the Beach Management Operations Area

Name of Site, Location and Area (ha)	Qualifying Features	Conservation Objectives	Threats to Site Integrity
<p>The Dee Estuary SPA SJ 211 812 14291.56 ha</p>	<p>Article 4.1 of the Directive (79/409/EEC)</p> <p>During the breeding season:</p> <ul style="list-style-type: none"> • Common Tern (<i>Sterna hirundo</i>) • Little Tern (<i>Sterna albifrons</i>) <p>On passage:</p> <ul style="list-style-type: none"> • Sandwich Tern (<i>Sterna sandvicensis</i>) <p>Over winter:</p> <ul style="list-style-type: none"> • Bar-tailed Godwit (<i>Limosa lapponica</i>) <p>Article 4.2 of the Directive (79/409/EEC)</p> <p>On passage:</p> <ul style="list-style-type: none"> • Redshank (<i>Tringa tetanus</i>) <p>Over winter:</p> <ul style="list-style-type: none"> • Black-tailed Godwit (<i>Limosa limosa islandica</i>) • Curlew (<i>Numenius arquata</i>) • Dunlin (<i>Calidris alpina alpina</i>) • Grey Plover (<i>Pluvialis squatarola</i>) • Knot (<i>Calidris canutus</i>) • Oystercatcher (<i>Haematopus ostralegus</i>) • Pintail (<i>Anas acuta</i>) • Redshank (<i>Tringa tetanus</i>) • Shelduck (<i>Tadorna tadorna</i>) • Teal (<i>Anas crecca</i>) <p>Assemblage qualification: A wetland of international importance.</p> <ul style="list-style-type: none"> • Black-tailed Godwit (<i>Limosa limosa islandica</i>) • Shelduck (<i>Tadorna tadorna</i>) • Great Crested Grebe (<i>Podiceps cristatus</i>) • Teal (<i>Anas crecca</i>) • Pintail (<i>Anas acuta</i>) 	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of the habitats of the qualifying features; ▪ The structure and function of the habitats of the qualifying features; ▪ The supporting processes on which the habitats of the qualifying features rely; ▪ The population of each of the qualifying features; and ▪ The distribution of the qualifying features within the site. 	<p>Public access/ disturbance</p> <p>Changes in species distribution (Petalwort)</p> <p>Invasive species</p> <p>Climate change</p> <p>Coastal squeeze</p> <p>Inappropriate scrub control</p> <p>Water pollution</p> <p>Fisheries: Commercial marine and estuarine</p> <p>Inappropriate coastal management</p> <p>Overgrazing</p> <p>Direct impact from 3rd party (Grass wort harvesting)</p> <p>Marine litter</p> <p>Predation</p> <p>Planning permission</p> <p>Marine consent and permits</p> <p>Wildlife/arson</p> <p>Air pollution: impact of atmospheric nitrogen deposition</p> <p>Transportation and service corridors</p> <p>Physical modifications</p>

Environment

	<ul style="list-style-type: none"> • Oystercatcher (<i>Haematopus ostralegus</i>) • Grey Plover (<i>Pluvialis squatarola</i>) • Bar-tailed Godwit (<i>Limosa lapponica</i>) • Dunlin (<i>Calidris alpina alpina</i>) • Sanderling (<i>Calidris alba</i>) • Curlew (<i>Numenius arquata</i>) • Redshank (<i>Tringa tetanus</i>) • Cormorant (<i>Phalacrocorax carbo</i>) • Wigeon (<i>Anas Penelope</i>) • Lapwing (<i>Vanellus vanellus</i>) • Knot (<i>Calidris canutus</i>) 		
<p>Mersey Narrows and North Wirral Foreshore SPA 2078.41 ha</p>	<p>Article 4.1 of the Directive (79/409/EEC) During the breeding season:</p> <ul style="list-style-type: none"> ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) ▪ Common Tern <i>Sterna (hirundo)</i> <p>During the wintering season:</p> <ul style="list-style-type: none"> ▪ Little Gull (<i>Hydrocoloeus minutes</i>) ▪ Common Tern <i>Sterna (hirundo)</i> <p>Article 4.2 of Directive (79/409/EEC)</p> <ul style="list-style-type: none"> ▪ Knot (<i>Calidris canutus islandica</i>) <p>Assemblage qualification:</p> <ul style="list-style-type: none"> ▪ Cormorant (<i>Phalacrocorax carbo</i>) ▪ Oystercatcher (<i>Haematopus ostralegus</i>) ▪ Grey Plover (<i>Pluvialis squatarola</i>) ▪ Sanderling (<i>Calidris alba</i>) ▪ Knot (<i>Calidris canutus</i>) ▪ Dunlin (<i>Calidris alpina alpina</i>) ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) ▪ Redshank (<i>Tringa tetanus</i>) 	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of the habitats of the qualifying features; ▪ The structure and function of the habitats of the qualifying features; ▪ The supporting processes on which the habitats of the qualifying features rely; ▪ The population of each of the qualifying features; and, ▪ The distribution of the qualifying features within the site. 	<p>Public access/ disturbance Changes in species distribution (Petalwort) Invasive species Climate change Coastal squeeze Inappropriate scrub control Water pollution Fisheries: Commercial marine and estuarine Inappropriate coastal management Overgrazing Direct impact from 3rd party (Grass wort harvesting) Marine litter]predation Planning permission Marine consent and permits Wildlife/arson Air pollution: impact of atmospheric nitrogen deposition Transportation and service corridors Physical modifications</p>
<p>Mersey Estuary SPA SJ 451 800 5023.35 ha</p>	<p>Article 4.1 of Directive (79/409/EEC) Overwinter</p> <ul style="list-style-type: none"> • Golden Plover <i>Pluvialis apricaria</i> <p>Article 4.2 of Directive (79/409/EEC) On passage</p> <ul style="list-style-type: none"> • Redshank <i>Tringa tetanus</i> <p>Overwinter</p> <ul style="list-style-type: none"> • Pintail <i>Anas acuta</i> • Common Teal <i>Anas crecca</i> • Dunlin <i>Calidris alpina alpina</i> • Redshank <i>Tringa tetanus</i> • Black-tailed godwit <i>Limosa limosa</i> 	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;</p> <ul style="list-style-type: none"> ▪ The extent and distribution of the habitats of the qualifying features ▪ The structure and function of the habitats of the qualifying features ▪ The supporting processes on which the habitats of the qualifying features rely ▪ The population of each of the qualifying features, and, ▪ The distribution of the qualifying features within the site. 	<p>The site is vulnerable to physical loss through land-claim and development, physical damage caused by navigation capital and maintenance dredging, agricultural requirements, non-physical loss, toxic and non-toxic contamination and biological disturbance by wildfowling.</p>

Environment

	<ul style="list-style-type: none"> • Shelduck <i>Tadorna tadorna</i> <p>Assemblage qualification: A wetland of international importance.</p> <ul style="list-style-type: none"> • Shelduck <i>Tadorna tadorna</i> • Wigeon <i>Anas penelope</i> • Golden Plover <i>Pluvialis apricaria</i> • Black-tailed godwit <i>Limosa limosa</i> • Curlew <i>Numenius arquata</i> • Grey Plover <i>Pluvialis squatarola</i> • Great Crested Grebe <i>Podiceps cristatus</i> • Common redshank <i>Tringa totanus</i> • Lapwing <i>Vanellus vanellus</i> • Ringed plover <i>Charadrius hiaticula</i> • Pintail <i>Anas acuta</i> • Common Teal <i>Anas crecca</i> • Dunlin <i>Calidris alpina alpina</i> 		
<p>Liverpool Bay SPA / Bae Lerpwl SPA</p>	<p>Article 4.1 of Directive (79/409/EEC)</p> <p>Overwinter</p> <p>Red-throated diver <i>Gavia stellata</i></p> <p>Article 4.2 of Directive (79/409/EEC)</p> <p>Overwinter</p> <p>Common Scoter <i>Melanitta nigra</i></p> <p>Assemblage qualification</p> <p>Area used by >20,000 waterfowl or seabirds in any one season</p>	<p>Subject to natural change, maintain or enhance the red-throated diver population and its supporting habitats in favourable condition. This will comprise the following;</p> <ul style="list-style-type: none"> ▪ The five year peak mean population size is no less than 922 individuals; ▪ The overall presence and abundance of prey species is maintained; ▪ They are not exposed to significant human-induced mortality in areas where they congregate in higher densities; ▪ They are not subject to significant disturbance <p>Subject to natural change, maintain or enhance the common scoter population and its supporting habitats in favourable condition. This will comprise the following;</p> <ul style="list-style-type: none"> ▪ The five year peak mean population size is no less than 54,675 individuals; ▪ The overall presence and abundance of benthic prey species within the site is maintained along with associated features; ▪ They are not exposed to significant human induced mortality and are not subject to significant disturbance; ▪ The movement between feeding and resting areas is not significantly impeded. <p>Subject to natural change, maintain or enhance the waterbird assemblage and its supporting habitats in favourable condition</p> <p>Aggregations of waterfowl and seabirds at feeding and resting sites are not subject to significant disturbance</p>	<p>Decrease in undisturbed sublittoral, shallow (<20m) sandbank habitat available for red-throated diver feeding.</p> <p>Commercial and recreational fishing could directly affect both the food source and feeding grounds.</p> <p>Red throated divers and common scoters are sensitive to non-physical, (noise and visual) disturbance. Disturbance or displacement impacts could potentially come from shipping, fishing, and offshore development and servicing activity.</p> <p>Direct result of human activities. Wind turbine strike and entrapment in fixed fishing nets would be the most likely cause of mortality of such species</p> <p>Reduction in small fish and sublittoral prey species available due to natural fluctuations.</p>

Environment

Table 4: SACs Located Within the Beach Management Operations Area

Name of Site, Location and Area (ha)	Qualifying Features	Conservation Objectives	Threats to Site Integrity
<p>Dee Estuary / Aber Dyfrdwy SAC SJ SJ190819 15805.89 ha</p>	<p>Article 4.4 of Directive 4.4 Annex I habitats</p> <ul style="list-style-type: none"> • Annual vegetation of drift lines • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) • Embryonic shifting dunes • Estuaries • Fixed dunes with herbaceous vegetation ('grey dunes') * • Humid dune slacks • Mudflats and sandflats not covered by seawater at low tide • <i>Salicornia</i> and other annuals colonising mud and sand • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') • Vegetated sea cliffs of the Atlantic and Baltic coasts <p>Article 4.4 of Directive 4.4 Annex II habitats</p> <ul style="list-style-type: none"> • Sea lamprey (<i>Petromyzon marinus</i>) • River lamprey (<i>Lampetra fluviatilis</i>) • Petalwort (<i>Petalophyllum ralfsii</i>) 	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats; ▪ The structure and function of the habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; ▪ The populations of qualifying species; and ▪ The distribution of qualifying species within the site. 	<p>Public access/ disturbance</p> <p>Changes in species distribution (Petalwort)</p> <p>Invasive species</p> <p>Climate change</p> <p>Coastal squeeze</p> <p>Inappropriate scrub control</p> <p>Water pollution</p> <p>Fisheries: Commercial marine and estuarine</p> <p>Inappropriate coastal management</p> <p>Overgrazing</p> <p>Direct impact from 3rd party (Grass wort harvesting)</p> <p>Marine litter</p> <p>predation</p> <p>Planning permission</p> <p>Marine consent and permits</p> <p>Wildlife/arson</p> <p>Air pollution: impact of atmospheric nitrogen deposition</p> <p>Transportation and service corridors</p> <p>Physical modifications</p>

Annex I priority habitats are denoted by an asterisk (*)

Table 5: SSSIs Located Within the Beach Management Operations Area

Name of Site, Location and Area (ha)	Description and Reasons for Notification
<p>Dee Estuary SSSI SJ 220 800 13, 679.7 ha</p>	<p>The Dee Estuary is of special interest for its total populations of internationally important wintering waterfowl; its populations of individual waterfowl and tern species whose numbers reach national and in some cases, internationally important levels; its intertidal mud and sandflats, saltmarsh and transitional habitats; the hard rocky sandstone cliffs of Hilbre Island and Middle Eye with their cliff vegetation and maritime heathland and grassland; its assemblage of nationally scarce plants; and its populations of sandhill rustic moth <i>Luperina nickerlii gueneei</i>, Red Data Book species.</p> <p>The Dee Estuary is particularly important for its wintering bird populations and both waders and- wildfowl achieve numbers of international importance. The estuary supports internationally important populations of a number of wader species, namely, oystercatcher <i>Haematopus ostralegus</i>, knot <i>Calidris canutus</i>, curlew <i>Numenius arquata</i>, redshank <i>Tringa totanus</i>, bar-tailed godwit <i>Limosa lapponica</i> black-tailed godwit <i>Limosa limosa</i>, grey plover <i>Pluvialis squatarola</i> and dunlin <i>Calidris alpina</i>, that utilise the abundant invertebrate populations principally on the extensive intertidal flats, particularly the mudflats. Wildfowl present in internationally important numbers include pintail <i>Anas acuta</i>, teal <i>Anas crecca</i> and shelduck <i>Tadorna tadorna</i>, whilst wigeon <i>Anas penelope</i> occur in nationally important numbers.</p> <p>The Dee Estuary is also an important staging post for migrating birds during both spring and autumn. Nationally important numbers of ringed plover <i>Charadrius hiaticula</i> are regularly seen on passage. In addition, the summering flock of non-breeding black-tailed godwit, is regarded as of national importance. The Dee Estuary also supports nationally important numbers of feeding common tern <i>Sterna hirundo</i>.</p> <p>The Dee Estuary also supports nationally important flocks of cormorant <i>Phalacrocorax carbo</i>, which occur throughout the year and great crested grebe <i>Podiceps cristatus</i>.</p>
<p>North Wirral Foreshore SSSI SJ 250920 2,109.9 ha</p>	<p>North Wirral Foreshore is located between the outer Dee and Mersey Estuaries. This site is an area of intertidal sand and mudflats and embryonic saltmarsh which is of considerable importance as a feeding and roosting site for passage and wintering flocks of waders, wildfowl, terns and gulls.</p> <p>The embryonic mixed saltmarsh is formed principally from common saltmarsh-grass <i>Puccinellia maritima</i> and glasswort <i>Salicornia europaea</i>, together with some common cord-grass <i>Spartina anglica</i>.</p> <p>Whilst North Wirral Foreshore is not comparable with either the Dee Estuary or the Mersey Estuary in terms of the numbers and diversity of passage and wintering birds, it is still of great value for</p>

Environment

Name of Site, Location and Area (ha)	Description and Reasons for Notification
	<p>the populations of knot, dunlin and bar-tailed godwit it supports. The wintering populations of knot (20,000+), bar-tailed godwit (2,000+) and dunlin (10,000+) are the most significant because their numbers regularly exceed 1% of their total British and Irish wintering populations. Redshank (1,000+), turnstone (500+) which feed on the rocky shore at Perch Rock and on the rocky sea walls, oystercatcher (500+), curlew, grey plover and black-tailed godwit are other waders which regularly roost here in relatively high numbers.</p> <p>Small populations of wildfowl, including common scoter, scaup and goldeneye, red-throated diver and great crested grebe also frequently winter on this site.</p>
<p>Mersey Narrows SSSI</p> <p>SJ 315 949</p> <p>117.84 ha</p>	<p>The Mersey Narrows is located at the mouth of the Mersey Estuary and comprises Seaforth on the north bank and Egremont Foreshore on the south. Whilst Egremont Foreshore is particularly important as a feeding site at low tide, Seaforth is particularly important as a high tide roost site, particularly during high spring tides when rocky shores and man-made structures closer to the feeding areas are submerged and not available as roosting sites.</p> <p>The site now consists of a complex of open water, saltmarsh and grasslands. Specifically it comprises two lagoons, a shallow water lagoon which functions as a settlement lagoon for water pumped from the River Mersey into the Seaforth Docks and a freshwater lagoon separated from the saltwater lagoon by a wide bund.</p> <p>The site is notified for its large areas of intertidal sand and mudflats, which supports internationally important populations of turnstone <i>Arenaria interpres</i>, redshank <i>Tringa tetanus</i> and nationally important populations of cormorant <i>Phalacrocorax carbo</i>.</p>

Environment

4 Description of the Beach Management Operations

4.1 Introduction

Wirral Borough Council proposes to undertake beach management operations at West Kirby, Hoylake, Wallasey and New Brighton beaches. These operations will include one or more of the following operations:

- Spraying with glyphosate-based weed killer;
- Raking; and
- Removal of windblown sand from the sea wall using a tractor with a boom.

The beach management operations will typically take 2 hours in duration including setup and will be undertaken as required. Tractors will be utilised to undertake the proposed beach management operations, where required, and any emissions to air, water or ground will be minor and localised.

4.2 West Kirby Beach

Beach management operations considered in the assessment for West Kirby beach are:

- Raking once a day Monday – Friday between April and September (inclusive);
- Raking each Sunday in April, May and September;
- Raking each Saturday and Sunday June, July and August; and
- Raking once a week between October and March, if required.

Raking will be undertaken using a tractor and comb rake to remove vegetation followed by a tractor and Barber Surf Rake. The area to be raked is shown on Figure 2.

4.3 Hoylake Beach

Beach management operations considered in the assessment of Hoylake beach are:

- Spraying with Roundup glyphosate based weed killer between once per year in August;
- Raking three times a week during April to September (inclusive); and
- Removal of windblown sand from the sea wall as and when it accumulates.

The area to be raked extends from the lifeboat station to Red Rocks in a band 100 metres (m) wide, between 0 -100 m from the wall. Raking will be undertaken using a tractor and comb rake to remove vegetation followed by a tractor and Barber Surf Rake. The area to be sprayed extends from the lifeboat station to red rocks, in a band 100 m wide, between 0 -100 m from the wall using a tractor with boom and in addition if necessary between 100 -120 m from the wall with knapsack sprayer (additional 20 m band), as shown on Figure 3.

Spraying with Roundup, a glyphosate based weed killer, has been deemed the best option for managing common cord grass at Hoylake beach, as physical removal (excavation of material) may lead to further spread of the species and, as test digging has shown, leaves the rhizome behind. Rotoburing is not possible at this location due to the soft sediment; smothering techniques and grazing are unsuitable at this location due to its use as an amenity beach and burning is not effective.

4.4 Wallasey Beach

Beach management operations considered in the assessment of Wallasey beach are:

- Raking once a month between April and September.

Environment

Raking will be undertaken using a tractor and comb rake to remove vegetation followed by a tractor and Barber Surf Rake. The area to be raked is shown on Figure 4.

4.5 New Brighton

Beach management operations considered in the assessment at New Brighton beach are:

- Rake once a month April – September (inclusive).

Raking will be undertaken using a tractor and comb rake to remove vegetation followed by a tractor and Barber Surf Rake. The area to be raked is shown on Figure 5.

Environment

5 Potential Effects

5.1 Potential Effects of the Beach Management Operations

This chapter sets out the potential effects of the beach management operations detailed in Chapter 4 that could impact on the identified designations in Chapter 3. Consideration has been given to the changes that could result from the management operations, including changes to sediment movement, hydrology, vegetation cover, emissions and physical damage. Potential effects that have been identified are presented in Table 6 below.

Table 6: Potential Ecological Effects

Habitat Loss/ Fragmentation or Damage
<p>Direct land take/ loss of habitat or fragmentation as a result of the beach management operations. There is also potential for direct damage to habitat or species from the proposed works.</p> <p>Inhibit growth of foreshore vegetation including common saltmarsh grass and the natural succession of unmanaged intertidal foreshore into saltmarsh.</p>
Disturbance – Noise and Visual
<p>Increased noise levels generated from raking / spraying operations have the potential to disturb qualifying features which may result in indirect effects upon roosting or foraging bird species.</p> <p>The presence of staff and machinery undertaking the operations has the potential to disturb qualifying features for example roosting or foraging bird species.</p>
Water Pollutants
<p>Water pollution (chemical contamination): There is an increased risk of transport of chemical contaminants into the aquatic environment from runoff and accidental spills during spraying activities (tractor fuel or herbicide). Changes to water quality can have harmful effects on fauna and flora, through lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>
Spread of Invasive Species
<p>During management operations there is potential for invasive species to be inadvertently introduced to European Sites. Such species could out-compete and replace desirable native species. The spread of invasive plant species may result in indirect impacts upon habitats which support qualifying features.</p>

Potential direct and indirect effects of the beach management operations were assessed against each qualifying features of the European Sites.

5.2 Source of Baseline to inform Screening Assessment

The following resources and online sources were utilised to inform the screening assessment to determine potential effects on European Sites:

- Dee Estuary Marine maps (Regulation 35 Packages);
- Regulations 35 Habitat Maps - Mersey Narrows and North Wirral Foreshore SPA;

Environment

- Birdguides (2006). Birds of the Western Palearctic interactive (BWPI) 2.0.1. Birdguides Ltd. (2003-2006);
- Robinson, R.A. (2005) BirdFacts: profiles of birds occurring in Britain & Ireland (BTO Research Report 407). BTO, Thetford (<http://www.bto.org/birdfacts>, accessed February 2016);
- BirdLife International (2015) IUCN Red List for birds. Downloaded from <http://www.birdlife.org> between February 2016;
- BTO Research Report No.648 (2014) Analysis of waterbird population trends in the Mersey Estuary SPA, Mersey Narrows & North Wirral foreshore pSPA and Ribble & Alt Estuaries SPA;
- <http://www.birdsofbritain.co.uk/bird-guide>; and
- <http://www.cheshireandwirralbirdatlas.org>.

5.3 Identification of pathways for Effect

This section identified those sites where a pathway exists as a result of the operations occurring within or adjacent to the European Sites identified within Chapter 3. As a result of the localised nature of the proposed works, the number of pathways present is limited.

Details and location of the sites where a pathway exists are listed in Tables 2 to 5 and are shown on Figure 6.

The very direct and localised nature of the beach management operations means that it is unlikely that sites remote to the operations will be impacted. The Dee Estuary is overall accreting and is influenced by changes in bank and channel arrangements, in particular the Gayton Channel. Therefore any movement of sedimentation as a result of the beach management operations would support this current trend.

The Wirral Shoreline Management Plan 2 studies (Halcrow, September 2010) identified that coastal narrowing is not an issue on the North Wirral Frontage and the Wirral Coastal Strategy HRA presents evidence to suggest that there will be a net increase in intertidal area. Therefore any movement of sedimentation as a result of the beach management operations would support this current trend.

Based on the information provided, there are no pathways between the 4 beach management locations with the following European Sites:

- Liverpool Bay SPA; and
- Mersey Estuary Ramsar/ SPA.

They have therefore been scoped out of the screening assessment and will not be considered any further.

Environment

Table 7: Designated Sites Within or Adjacent to Beach Management Operations

	Beach	West Kirby	Hoylelake	Wallasey	New Brighton
Designated Site	Dee Estuary Ramsar	✓	✓ (adjacent)		
	Dee Estuary SAC	✓	✓	✓	✓
	Dee Estuary SPA	✓	✓ (adjacent)		
	Dee Estuary SSSI	✓			
	Mersey Narrows and North Wirral Foreshore Ramsar		✓	✓	✓
	Mersey Narrows and North Wirral Foreshore SPA		✓	✓	✓
	North Wirral Foreshore SSSI		✓	✓	✓
	Mersey Narrows SSSI				✓

Mechanism for effect

This section identifies whether a mechanism for effect exists between the sources of effect described above (in Section 5.1) and the interest features of those sites where a pathway exists (Chapter 3). A mechanism is identified where there is a source of effect, a pathway identified and a receptor present that is sensitive to the potential effects.

The interest features of those sites where a pathway exists have been considered in order to determine whether a mechanism for effect exists and therefore whether a feature needs to be scoped in for the likely significant effect test. The results of this scoping stage are presented in Appendix B.

Environment

6 Habitat Regulations Assessment Screening Assessment

6.1 Management Test

The first question that needs to be considered in is whether the Project is directly connected with or necessary to the management of the site for nature conservation (Step 1 of the HRA). In the case of these management operations the answer is no; although there may be some benefits to over wintering birds as a result of the vegetation clearance, this is not the primary purpose of the management operations. As such, the screening assessment moves on to the next step.

6.2 Likely Significant Effects Test

The second question that need to be answered is whether there is potential for likely significant effects on qualifying features from the beach management operations either alone or in-combination with other plans and projects, which is known as the likely significant effect test (Step 2 of the HRA). Chapter 5 details the European Sites which have been considered in the screening assessment.

Potential for a Likely Significant Effect

Where both a pathway and a mechanism for effect are present, the interest features have been screened to determine whether there is potential for likely significant effects as a result of the beach management operations, and therefore whether appropriate assessment (Stage 3) is required. This screening assessment includes the application of committed avoidance and reduction / mitigation measures. Based on the methodology set out in Chapter 2, where an effect is completely avoided then the operation / interest feature has been screened out and a conclusion of no likely significant effect has been made. Where complete avoidance is not possible but reduction measures have been applied in order to conclude that there are no likely significant effects alone, these operations / interest features have been taken through to the in combination assessment. The reason for this is that although the effects are not significant, when they are considered in the aggregate with other non-significant effects resulting from other projects, they could potentially result in significant effects.

Tables 8 to11 set out the likely significant effects assessment.

Environment

Table 8: Likely Significance Effects Test West Kirby

Interest Feature (Scoped In)	Potential Effect	Application of Avoidance / Reduction / Mitigation	Likely Significant Effect alone?
Dee Estuary SAC, SPA and Ramsar			
Mudflats and sandflats not covered by seawater at low tide Atlantic salt meadow Sea lamprey River lamprey Mixed waders feeding (oyster catcher, red knot, shelduck, sanderling, cormorant, lapwing and great crested grebe) Mixed waders roost (oyster catcher, dunlin, curlew, cormorant, red shank, bar-tailed godwit and grey plover)	<p>Habitat loss and/ or physical damage</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)².</p> <p>Regular beach raking will inhibit the growth of foreshore vegetation including common saltmarsh grass, glasswort (<i>Salicornia europaea</i>) and common cord grass and the natural succession of unmanaged intertidal foreshore into saltmarsh.</p> <p>Raking will take place on gravel and clean sand communities to the south of the atlantic salt meadow habitat however as the works will be temporary and localised likely significant effects upon SAC habitat is considered unlikely.</p> <p>West Kirby beach is subject to substantial recreational disturbance. More favourable, undisturbed, habitat for roosting / feeding and foraging of mixed waders is present away from the shoreline or to the south of the Dee Estuary. Therefore raking activities are unlikely to result in the loss of suitable habitat for roosting/ feeding / foraging mixed waders and there is no potential for likely significant effects.</p> <p>Due to the habitat requirements of lamprey and the nature of the proposed works, there is no potential for likely significant effects.</p>	<ul style="list-style-type: none"> Avoid area of Atlantic salt meadow to the north will ensure protection of the saltmarsh and associated transitional habitats. 	<p>There is no potential for LSE, and no further assessment is required.</p>
	<p>Disturbance</p> <p>There is potential for temporary disturbance (noise, physical presence from personnel etc.) generated during beach management activities to affect wintering bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SPA.</p> <p>Beach management activities would include the use of a tractor. Each operation would take up to 2 hours, including set up and it is likely that disturbing activities would be shorter in duration. West Kirby beach is already subject to substantial recreational disturbance. As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects upon wintering birds</p>	<ul style="list-style-type: none"> Raking will be undertaken once a week (if required) between March and October. Raking will be undertaken outside of the wintering bird season. No raking to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Raking activities will cease at high water when birds are present 	<p>There is no potential for LSE.</p>
	<p>Water Pollutants</p> <p>There is potential for accidental fuel spills, which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks. 	<p>There is no potential for LSE. In-combination assessment required.</p>
	<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles.</p>	<ul style="list-style-type: none"> Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>There is no potential for LSE, and no further assessment is required.</p>

² <http://jncc.defra.gov.uk/page-1680>

Environment

Table 9: Likely Significance Effects Test for Hoylake Beach

Interest Feature (Scoped In)	Potential effect	Application of avoidance / reduction / mitigation	Likely Significant Effect alone?
Dee Estuary SAC, SPA and Ramsar			
Mudflats and sandflats not covered by seawater at low tide Sea lamprey River lamprey Common tern (breeding) Little tern (breeding) Sandwich tern (passage) Redshank (passage) Bar-tailed godwit (non-breeding) Curlew (non-breeding) Dunlin (non- breeding) Grey plover (non-breeding) Red knot (non- breeding) Oystercatcher (non- breeding) Shelduck (non-breeding) Sanderling (non- breeding) Cormorant (non-breeding) Lapwing (non-breeding) Great crested grebe (non-breeding)	<p>Habitat loss and/ or physical damage</p> <p>Spraying will result in the loss of common cord grass and common saltmarsh grass. The rapid colonisation of the grass over mudflats is a concern where large wintering wader and wildfowl populations are present due to the loss of habitat (exposed mudflat) for feeding and roosting.</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)³.</p> <p>It is unlikely that the area to be sprayed has any effect on the other existing flora and fauna present; conversely, the uncontrolled spread of the species could result in adverse effects.</p> <p>Regular beach raking will inhibit the growth of foreshore vegetation including common saltmarsh grass, glasswort (<i>Salicornia europaea</i>) and common cord grass and the natural succession of unmanaged intertidal foreshore into saltmarsh.</p> <p>Raking will take place on gravel and clean sand communities however as the works will be temporary and localised likely significant effects upon SAC habitat is considered unlikely.</p> <p>As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects upon wintering bird habitat.</p> <p>There is a mixed species tern roosting site adjacent to Hoylake. As terns are prone to disturbance and Hoylake beach is subject to regular and substantial recreational disturbance, it is unlikely that the beach would offer suitable breeding habitat to terns and therefore there is no potential for likely significant effects.</p> <p>Due to the habitat requirements of lamprey and the nature of the proposed works, there is no potential for likely significant effects.</p>		There is no potential for LSE, and therefore no further assessment is required.
	<p>Disturbance</p> <p>There is potential for temporary disturbance (noise, physical presence from personnel) generated during beach management activities to affect wintering and breeding bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SPA.</p> <p>Beach management activities would include the use of a tractor, outside the wintering bird season. Each operation would take up to 2 hours including set up and it is likely that disturbing activities would be shorter in duration.</p> <p>As activities are outside the wintering bird season, there is no potential for likely significant effects to wintering birds.</p> <p>There is a mixed species tern roosting site adjacent to Hoylake. As terns are prone to disturbance and Hoylake beach is subject to regular and substantial recreational disturbance, it is unlikely they utilise the beach area to be raked/sprayed and therefore there is no potential for likely significant effects.</p> <p>Hoylake beach is already subject to substantial recreational disturbance, as it is an amenity beach, and therefore the raking is unlikely to cause likely significant effects from disturbance.</p>	<ul style="list-style-type: none"> ▪ Raking will be undertaken three times a week (if required) between April and September (inclusive). Raking will be undertaken outside of the wintering bird season. No raking to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Raking activities will cease at high water when birds are present. ▪ The area will be maintained as a high water roost and any spraying or raking activity reflects this protection be ceasing at high water when birds are present. 	There is no potential for LSE, and therefore no further assessment is required.
	<p>Water pollutants</p> <p>Spraying has the potential to result in likely significant effects upon foraging qualifying features and supporting habitat as a result of the herbicide entering the water⁴.</p> <p>There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey</p>	<ul style="list-style-type: none"> ▪ Spraying will only be undertaken by a registered sprayer using Roundup Pro-biactive and with prior approval from the Environment Agency and Natural England. ▪ The manufacturer's instructions and Control of Pesticide regulations will be complied with. ▪ No other product will be used unless it is approved for use in or near 	There is no potential for LSE. In-combination assessment required.

³ <http://jncc.defra.gov.uk/page-1680>

⁴ It should be noted that currently glyphosate is still in use in herbicides; however this may change pending EU decision

Environment

Interest Feature (Scoped In)	Potential effect	Application of avoidance / reduction / mitigation	Likely Significant Effect alone?
	<p>source.</p> <p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles.</p>	<p>water</p> <ul style="list-style-type: none"> ▪ Spraying will be carried out in the correct conditions and kept to a minimum. ▪ Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). ▪ Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks <ul style="list-style-type: none"> ▪ Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>There is no potential for LSE, and therefore no further assessment is required.</p>
Mersey Narrows and North Wirral Foreshore SPA, Ramsar			
<p>Common tern (breeding)</p> <p>Little gull (non-breeding)</p> <p>Bar-tailed godwit (non-breeding)</p> <p>Redshank (non-breeding)</p> <p>Dunlin (non- breeding)</p> <p>Red Knot (non- breeding)</p> <p>Grey plover (non- breeding)</p> <p>Oystercatcher (non- breeding)</p> <p>Cormorant (non-breeding)</p> <p>Sanderling (non- breeding)</p>	<p>Habitat loss and/ or physical damage</p> <p>There is potential for temporary habitat loss or damage upon saltmarsh and foraging / roosting habitat of qualifying features from the spraying and raking activities on Hoylake beach.</p> <p>Spraying will result in the loss of common cord grass and common saltmarsh grass. The rapid colonisation of the grass over mudflats is a concern where large wintering wader and wildfowl populations are present due to the loss of habitat (exposed mudflat) for feeding and roosting.</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)⁵.</p> <p>It is unlikely that the area to be sprayed has any effect on the other existing flora and fauna present; conversely, the uncontrolled spread of the species could result in adverse effects.</p> <p>Regular beach raking will inhibit the growth of foreshore vegetation including common saltmarsh grass, glass wort and common cord grass and the natural succession of unmanaged intertidal foreshore into saltmarsh.</p> <p>As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects to wintering bird habitat.</p> <p>There is a mixed species tern roosting site adjacent to Hoylake. As terns are prone to disturbance and Hoylake beach is subject to regular and substantial recreational disturbance, it is unlikely they utilise the beach area to be raked/sprayed and therefore there is no potential for likely significant effects.</p> <p>Disturbance</p> <p>There is potential for temporary disturbance (noise and physical presence by personnel) generated during beach management activities upon breeding bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SPA.</p> <p>Beach management activities would include the use of a tractor, outside the wintering bird season. Each operation would take up to 2 hours including set up and it is likely that disturbing activities would be shorter in duration.</p> <p>As activities are outside the wintering bird season, there is no potential for likely significant</p>	<ul style="list-style-type: none"> ▪ Raking will be undertaken three times a week (if required) between April and September (inclusive). Raking will be undertaken outside of the wintering bird season. No raking to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Raking activities will cease at high water when birds are present ▪ The area will be maintained as a high water roost and any spraying or raking activity reflects this protection be ceasing at high water when birds are present. 	<p>There is no potential for LSE, and therefore no further assessment is required.</p> <p>There is no potential for LSE, and therefore no further assessment is required.</p>

⁵ <http://jncc.defra.gov.uk/page-1680>

Environment

Interest Feature (Scoped In)	Potential effect	Application of avoidance / reduction / mitigation	Likely Significant Effect alone?
	<p>effects to wintering birds.</p> <p>There is a mixed species tern roosting site adjacent to Hoylake. As terns are prone to disturbance and Hoylake beach is subject to regular and substantial recreational disturbance, it is unlikely they utilise the beach area to be raked/sprayed and therefore there is no potential for likely significant effects.</p> <p>Hoylake beach is already subject to substantial recreational disturbance, as it is an amenity beach, and therefore the raking is unlikely to cause likely significant effects from disturbance.</p>		
	<p>Water pollutants</p> <p>Spraying has the potential to result in likely significant effects upon foraging qualifying features and supporting habitat as a result of the herbicide entering the water⁶.</p> <p>There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> ▪ Spraying will only be undertaken by a registered sprayer using Roundup Pro-biactive and with prior approval from the Environment Agency and Natural England. ▪ The manufacturers instructions and Control of Pesticide regulations will be complied with. ▪ No other product will be used unless it is approved for use in or near water. ▪ Spraying will be carried out in the correct conditions and kept to a minimum. ▪ Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). ▪ Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks. 	<p>There is no potential for LSE. In-combination assessment required.</p>
	<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles.</p>	<ul style="list-style-type: none"> ▪ Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>There is no potential for LSE, and therefore no further assessment is required.</p>

⁶ It should be noted that currently glyphosate is still in use in herbicides; however this may change pending EU decision

Environment

Table 10: Likely Significance Effects Test Wallasey

Interest Feature (Scoped In)	Potential effect	Application of avoidance / reduction / mitigation	Likely Significant Effect alone?
Dee Estuary SAC			
Mudflats and sandflats not covered by seawater at low tide Sea lamprey River lamprey	<p>Habitat loss and/ or physical damage</p> <p>Regular beach raking will inhibit the growth of foreshore vegetation including common saltmarsh grass. Raking will take place on gravel and clean sand communities however as the works will be temporary and localised likely significant effects upon SAC habitat is considered unlikely.</p> <p>Due to the habitat requirements of lamprey and the nature of the proposed works, there is no potential for likely significant effects.</p>		There is no potential for LSE, and therefore no further assessment is required.
	<p>Water Pollutants</p> <p>There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> ▪ Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). ▪ Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks 	There is no potential for LSE. In-combination assessment required.
	<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced in soil or organic material on footwear and vehicles.</p>	<ul style="list-style-type: none"> ▪ Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	There is no potential for LSE, and therefore no further assessment is required.
Mersey Narrows and North Wirral Foreshore SPA, Ramsar			
Common tern (breeding) Little gull (non-breeding) Bar-tailed godwit (non-breeding) Redshank (non-breeding) Dunlin (non- breeding) Red Knot (non- breeding) Grey plover (non- breeding) Oystercatcher (non- breeding) Cormorant (non-breeding) Sanderling (non- breeding)	<p>Habitat loss and/ or physical damage</p> <p>There is potential for temporary habitat loss or damage upon saltmarsh and foraging / roosting habitat of qualifying features from raking activities on Wallasey beach.</p> <p>Raking will result in the loss of common cord grass. The rapid colonisation of the grass over mudflats is a concern where large wintering wader and wildfowl populations are present due to the loss of habitat (exposed mudflat) for feeding and roosting.</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)⁷.</p> <p>It is unlikely that the area to be raked has any effect on the other existing flora and fauna present; conversely, the uncontrolled spread of the species could result in adverse effects.</p> <p>As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects to wintering bird habitat.</p> <p>There is potential for the common tern to use habitat within the area of Wallasey in the future however no records indicate current use. As terns are prone to disturbance it is unlikely they utilise the beach area to be raked and therefore there is no potential for likely significant effects.</p>		There is no potential for LSE, and therefore no further assessment is required.

⁷ <http://jncc.defra.gov.uk/page-1680>

Environment

	<p>Disturbance</p> <p>There is potential for temporary disturbance (noise and physical presence by personnel) generated during beach management activities upon wintering and breeding bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SPA.</p> <p>Beach management activities would include the use of a tractor. Each operation would take up to 2 hours and include site setup, and therefore it is likely that disturbing activities would be shorter in duration.</p> <p>As activities are outside the wintering bird season, there is no potential for likely significant effects to wintering birds.</p> <p>Wallasey beach is already subject to substantial recreational disturbance, as it is an amenity beach, and therefore the raking is unlikely to cause likely significant effects from disturbance.</p>	<ul style="list-style-type: none"> ▪ Raking will be undertaken once a month (if required) between April and September. Raking will be undertaken outside of the wintering bird season. No raking to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Raking activities will cease at high water when birds are present ▪ The area will be maintained as a high water roost and any spraying or raking activity reflects this protection ceasing at high water when birds are present 	<p>There is no potential for LSE, and therefore no further assessment is required.</p>
	<p>Water Pollutants</p> <p>There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> ▪ Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). ▪ Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks 	<p>There is no potential for LSE. In-combination assessment required.</p>
	<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles.</p>	<ul style="list-style-type: none"> ▪ Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>There is no potential for LSE, and therefore no further assessment is required.</p>

Environment

Table 11: Likely Significance Effects Test New Brighton

Interest Feature (Scoped In)	Potential effect	Application of avoidance / reduction / mitigation	Likely Significant Effect alone?
Dee Estuary SAC			
Sea lamprey River lamprey	<p>Habitat loss and/ or physical damage</p> <p>The working area supports no qualifying habitat listed on the citations. No further assessment is required.</p> <p>Due to the habitat requirements of lamprey and the nature of the proposed works, there is no potential for likely significant effects.</p>		There is no potential for LSE, and therefore no further assessment is required.
	<p>Water Pollutants</p> <p>There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks 	There is no potential for LSE. In-combination assessment required.
	<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced in soil or organic material on footwear and vehicles.</p>	<ul style="list-style-type: none"> Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	There is no potential for LSE, and therefore no further assessment is required.
Mersey Narrows and North Wirral Foreshore SPA, Ramsar			
Little gull (non-breeding) Redshank (non-breeding) Dunlin (non-breeding) Red knot (non-breeding) Oystercatcher (non-breeding) Cormorant (non-breeding) Sanderling (non-breeding)	<p>Habitat loss and/ or physical damage</p> <p>Raking will result in the loss of common cord grass. The rapid colonisation of the grass over mudflats is a concern where large wintering wader and wildfowl populations are present due to the loss of habitat (exposed mudflat) for feeding and roosting.</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)⁸.</p> <p>There is potential for temporary habitat loss or damage upon foraging / roosting habitat of qualifying features from raking activities on New Brighton beach.</p> <p>As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects to wintering bird habitat. In addition, there is no potential for breeding birds (see Table B3 'Appendix B Scoping') in this location there is no potential for likely significant effects.</p>		There is no potential for LSE, and therefore no further assessment is required.
	<p>Disturbance</p> <p>There is potential for temporary disturbance (noise and physical presence by personnel) generated during beach management activities upon wintering and breeding bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SPA.</p> <p>Beach management activities would include the use of a tractor. Each operation would take up to 2 hours and include site setup, and therefore it is likely that disturbing activities would be shorter in duration.</p> <p>As activities are outside the wintering bird season, there is no potential for likely significant effects to wintering birds. In addition, there is no potential for breeding birds (see Table B3 'Appendix B Scoping') in this location and therefore no potential for likely significant effects.</p>	<ul style="list-style-type: none"> Raking will be undertaken once a month (if required) between April and September (inclusive). Raking will be undertaken outside of the wintering bird season. No raking to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Raking activities will cease at high water when birds are present. The area will be maintained as a high water roost and any raking activity reflects this protection be ceasing at high water when birds are present. 	There is no potential for LSE, and therefore no further assessment is required.

⁸ <http://jncc.defra.gov.uk/page-1680>

Environment

	<p>Water Pollutants</p> <p>There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> ▪ Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). ▪ Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks 	<p>There is no potential for LSE. In-combination assessment required.</p>
	<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles.</p>	<ul style="list-style-type: none"> ▪ Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>There is no potential for LSE, and therefore no further assessment is required.</p>

7 In Combination Assessment

7.1 Introduction

The Habitats Regulations state that when considering whether a specific plan or project is likely to have a significant effect on a European Site, consideration should be given to the effect of the project in isolation and in-combination with other projects. Part of the HRA process is to identify the projects that could have in-combination effects. In assessing in-combination effects the following projects should be considered:

- Projects which have already been implemented or completed;
- Projects which have been given consent but which have not yet been implemented or completed;
- Projects for which applications for consent have been made; and
- Ongoing projects that are subject to periodic regulatory reviews.

Table 12: Other Plans, Programmes and Projects

Plans, Projects & Programmes	Description	Potential for In-Combination Effects?
Projects		
West Kirby Flood Alleviation Scheme	Wirral Council is looking to reduce flood risk in West Kirby and is exploring how best to do this working with expert partners such as the Environment Agency. The council is now close to submitting its business case to the Environment Agency, in order to secure the grant aid that will play a part in funding the scheme.	The construction of West Kirby Flood Alleviation scheme and beach management operations at West Kirby have the potential to result in likely significant effects upon qualifying habitats and species from an increase in pollutants and disturbance generated during construction. Assuming that the proposed developers, Wirral Council, implement best practice measures, there is no potential for likely significant effects in-combination.
Liverpool Waters	Liverpool Waters is a major regeneration project involving sixty hectares of redundant docks in the heart of the city of Liverpool. Outline planning was granted by Liverpool City Council in 2013 while the masterplan divides the site into five distinct neighbourhoods: Princes Dock, Central Docks, Clarence Docks, Northern Docks and King Edward Triangle.	The construction of Liverpool Waters and beach management operations at New Brighton beach have the potential to result in likely significant effects upon qualifying habitats and species from an increase in pollutants and disturbance generated during construction. Assuming that the proposed developers, Peel Group, implement best practice measures, there is no potential for likely significant effects in-combination.
Wirral Waters	Wirral Water is a private sector development by Peel Holdings. The scheme was granted full planning permission in December 2010 after taking four years to achieve full planning consent. Proposals include for commercial facilities, mixed use development including residential and retail.	The construction of Wirral Waters and beach management operations at New Brighton beach have the potential to result in likely significant effects upon qualifying habitats and species from an increase in pollutants and disturbance generated during construction. Assuming that the proposed developers, Peel Group, implement best practice measures, there is no potential for likely significant effects in-combination.
Liverpool 2	Liverpool 2 is a private sector development by Peel Holdings. The Proposals include development for a central deep water container terminal built in the River Mersey. The development is expected to have a phased opening throughout 2016.	The construction of Wirral Waters and beach management operations at New Brighton beach have the potential to result in likely significant effects upon qualifying habitats and species from an increase in pollutants and disturbance generated during construction. Assuming that the proposed developers, Peel Group, implement best practice measures, there is no potential for likely significant

Plans, Projects & Programmes	Description	Potential for In-Combination Effects?
		effects in-combination.
Western Link	The Western Link project includes High Voltage Direct Current (HVDC) subsea and underground cables, incorporating a converter station at each end of the link to change the electricity from direct current to alternating current to enable it to be used within the existing electricity transmission system.	Both projects propose works within the intertidal zone and there is potential for in-combination effects from disturbance and pollutants, should the works occur during the same period. Assuming that the proposed developers, Scottish Power, implement best practice measures, there is no potential for likely significant effects in-combination.

Other minor activities which should be considered in-combination with the proposed works include active dredging, water sports, in addition to ongoing shipping & navigational activities in the Mersey Estuary. However it is anticipated that such users would implement best practice measures and there will no potential for likely for significant effects in-combination.

The in-combination chapter has identified that there are a variety of developments proposed within the study area, however due to the limited nature of the beach management operations, in-combination effects can be appropriately mitigated by good practice measures and there is no potential for LSE in-combination.

8 Assessment of Operations Requiring Natural England's Consent

8.1 Introduction

As part of the application for assent from Natural England there is a requirement to determine whether the beach management operations proposed are likely to damage the SSSI. The following tables list the relevant Operations requiring Natural England's Consent (ORNECs) for each SSSI and identify any potential effects that may occur from the management operations listed in Chapter 4.

The interest features of those sites where a pathway exists have been considered in order to determine whether a mechanism for effect exists and therefore whether a feature needs to be scoped in for the assessment of operations requiring Natural England's Consent. The identified features below have used the results of Appendix B, the sources of information shown in Section 5.2 and the Natural England citation sheets relevant to each SSSI.

Table 13: Dee Estuary SSSI Assessment (West Kirby)

Notified Features	Operations Requiring Natural England's Consent	Potential effects	Application of avoidance/ reduction/ mitigation	Potential for Damage to SSSI
Oystercatcher (non-breeding) Knot (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Bar-tailed godwit Grey plover (non-breeding)		<p>Habitat loss and/ or physical damage</p> <p>The raking work (cultivation and/or cutting of any plant) would be classed as an ORNEC. Regular beach raking will inhibit the growth of foreshore vegetation including common saltmarsh grass.</p> <p>Raking will take place on gravel and clean sand communities to the south of the atlantic salt meadow habitat however as the works will be temporary and localised likely significant effects upon SSSI habitat is considered unlikely.</p> <p>West Kirby beach is subject to substantial recreational disturbance. More favourable, undisturbed, habitat for roosting / feeding and foraging of mixed waders is present away from the shoreline or to the south of the Dee Estuary. Therefore raking activities are unlikely to result in the loss of suitable habitat for roosting/ feeding / foraging and there is no potential for likely significant effects.</p>	<ul style="list-style-type: none"> Avoid area of Atlantic salt meadow to the north will ensure protection of the saltmarsh and associated transitional habitats. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features.</p>
Dunlin (non-breeding) Shelduck (non-breeding) Ringed plover (non-breeding) Cormorant (non-breeding) Great crested grebe (non-breeding)	<ul style="list-style-type: none"> Cultivation, including ploughing, rotovating, harrowing, and re-seeding. Destruction, displacement, removal or cutting of any plant or plant remains. Use of vehicles or craft. 	<p>Disturbance</p> <p>The use of a tractor would be an ORNEC. There is therefore potential for temporary disturbance (noise, physical presence by personnel) generated during beach management activities upon wintering and breeding bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SSSI.</p> <p>Beach management activities would include the use of a tractor. Each operation would take up to 2 hours and include site setup, and therefore it is likely that disturbing activities would be shorter in duration.</p> <p>West Kirby beach is already subject to substantial recreational disturbance. As beach management activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects upon wintering birds.</p>	<ul style="list-style-type: none"> Beach management activities will be undertaken once a week (if required) between March and October. They will be undertaken outside of the wintering bird season. No beach management activities are to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Activities will cease at high water when birds are present. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features.</p>
Mudflats and sandflats not covered by seawater at low tide Saltmarsh and transitional habitats Grey seal		<p>Water Pollutants</p> <p>The use of a tractor would constitute an ORNEC. There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks. 	<p>The application of mitigation measures should reduce any adverse impacts to negligible.</p>
Reed warblers Smelt		<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles. This would be considered displacement, and is therefore an ORNEC.</p>	<ul style="list-style-type: none"> Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features.</p>

Table 14: North Wirral Foreshore SSSI Assessment (Hoylake, Wallasey and New Brighton)

Notified Features	Operations Requiring Natural England's Consent	Potential effects	Application of avoidance/ reduction/ mitigation	Potential for Damage to SSSI
Embryonic mixed saltmarsh Knot (non-breeding) Dunlin (non-breeding) Bar-tailed godwit (non-breeding) Redshank (non-breeding) Turnstone (non-breeding) Oystercatcher (non-breeding) Curlew (non-breeding)	<ul style="list-style-type: none"> • Cultivation, including ploughing, rotovating, harrowing, and re-seeding. • Application of pesticides, including herbicides (weedkillers). • The destruction, displacement, removal or cutting of any plant or plant remains, including herbs. 	<p>Habitat loss and/ or physical damage</p> <p>Spraying (the application of pesticides, including herbicides (weedkillers)) will result in the loss of common cord grass and is therefore considered an ORNEC. The rapid colonisation of the grass over mudflats is a concern where large wintering wader and wildfowl populations are present due to the loss of habitat (exposed mudflat) for feeding and roosting.</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)⁹.</p> <p>It is unlikely that the area to be sprayed has any effect on the other existing flora and fauna present; conversely, the uncontrolled spread of the species could result in adverse effects.</p> <p>Regular beach raking will inhibit the growth of foreshore vegetation including common saltmarsh grass, glasswort (<i>Salicornia europaea</i>) and common cord grass and the natural succession of unmanaged intertidal foreshore into saltmarsh. This would be considered as cutting plant material and/or cultivation, and is therefore an ORNEC.</p> <p>Raking will take place on gravel and clean sand communities however as the works will be temporary and localised likely significant effects upon SSSI habitat is considered unlikely.</p> <p>As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects upon wintering bird habitat.</p>		<p>There is no potential for adverse impacts upon the SSSI.</p>
Grey plover (non-breeding) Black-tailed godwit (non-breeding) Common scoter (non-breeding) Scaup (non-breeding) Goldeneye (non-breeding)	<ul style="list-style-type: none"> • Use of vehicles or craft . 	<p>Disturbance</p> <p>The use of a tractor would be an ORNEC. There is potential for temporary disturbance (noise, physical presence from personnel) generated during beach management activities to affect wintering bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SSSI.</p> <p>Beach management activities would include the use of a tractor (which would be considered an ORNEC), outside the wintering bird season. Each operation would take up to 2 hours including set up and it is likely that disturbing activities would be shorter in duration.</p> <p>As activities are outside the wintering bird season, there is no potential for likely significant effects to wintering birds.</p>	<ul style="list-style-type: none"> ▪ Beach management activities will be undertaken once a week (if required) between March and October. They will be undertaken outside of the wintering bird season. No beach management activities are to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Activities will cease at high water when birds are present. ▪ The area will be maintained as a high water roost and any activity reflects this protection be ceasing at high water when birds are present. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features</p>
Red-throated diver (non-breeding) Great crested grebe (non-breeding)		<p>Water pollutants</p> <p>Spraying (the application of pesticides, including herbicides (weedkillers)), is considered an ORNEC. It has the potential to result in likely significant effects upon foraging qualifying features and supporting habitat as a result of the herbicide entering the water¹⁰.</p> <p>The use of a tractor would constitute an ORNEC. There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> ▪ Spraying will only be undertaken by a registered sprayer using Roundup Pro-biactive and with approval from the Environment Agency and Natural England. ▪ The manufacturer's instructions and Control of Pesticide regulations will be complied with. ▪ No other product will be used unless it is approved for use in or near water. ▪ Spraying will be carried out in the correct conditions and kept to a minimum. ▪ Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant 	<p>The application of mitigation measures should reduce any adverse impacts upon the site to negligible.</p>

⁹ <http://jncc.defra.gov.uk/page-1680>

¹⁰ It should be noted that currently glyphosate is still in use; however this may change subject to a pending EU decision

Notified Features	Operations Requiring Natural England's Consent	Potential effects	Application of avoidance/ reduction/ mitigation	Potential for Damage to SSSI
			<p>guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance).</p> <ul style="list-style-type: none"> ▪ Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks. 	
		<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to designated site resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles. This would be considered displacement, and is therefore an ORNEC.</p>	<ul style="list-style-type: none"> ▪ Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features</p>

Table 15: Mersey Narrows SSSI Assessment (New Brighton)

Notified Features	Operations Requiring Natural England's Consent	Potential effects	Application of avoidance/ reduction/ mitigation	Potential for Damage to SSSI
Intertidal sand and mudflats Turnstone (non-breeding) Redshank (non-breeding) Cormorant (non-breeding)	<ul style="list-style-type: none"> Cultivation, including ploughing, rotovating, harrowing, and re-seeding. Destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould and turf. Use of vehicles or craft. 	<p>Habitat loss and/ or physical damage</p> <p>There is potential for temporary habitat loss or damage upon foraging / roosting habitat of qualifying features from raking activities on New Brighton beach. This would be considered as cutting plant material and/or cultivation, and is therefore an ORNEC.</p> <p>Raking will result in the loss of common cord grass. The rapid colonisation of the grass over mudflats is a concern where large wintering wader and wildfowl populations are present due to the loss of habitat (exposed mudflat) for feeding and roosting.</p> <p>It is believed that common cord grass may have helped the die back of the native <i>S. maritima</i> as the latter is much less widely spread than formerly (Perring & Walters 1976). In addition, by taking over from native pioneer species, common cord grass has altered the course of succession. It usually produces a monoculture which has much less intrinsic value to wildlife than the naturally species-diverse marsh (Davidson et al. 1991)¹¹.</p> <p>As raking activities will be undertaken outside the wintering bird season, there is no potential for likely significant effects to wintering bird habitat.</p>		<p>There is no potential for adverse impacts upon the SSSI.</p>
		<p>Disturbance</p> <p>The use of a tractor would be an ORNEC There is potential for temporary disturbance (noise and physical presence by personnel) generated during beach management activities upon wintering and breeding bird species. This disturbance has the potential to impact on the feeding ability and calorific expenditure of birds cited under as features of the SSSI.</p> <p>Beach management activities would include the use of a tractor. Each operation would take up to 2 hours and include site setup, and therefore it is likely that disturbing activities would be shorter in duration.</p> <p>As activities are outside the wintering bird season, there is no potential for likely significant effects to wintering birds.</p>	<ul style="list-style-type: none"> Beach management activities will be undertaken once a week (if required) between March and October. They will be undertaken outside of the wintering bird season. No beach management activities are to be undertaken if roosting activity is observed by a suitably qualified ornithologist within the raking area. Activities will cease at high water when birds are present. The area will be maintained as a high water roost and any activity reflects this protection be ceasing at high water when birds are present. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features.</p>
		<p>Water Pollutants</p> <p>The use of a tractor would constitute an ORNEC. There is potential for accidental fuel spills which could cause harmful effects on populations of fauna and flora, resulting in lowered oxygen levels and changes to ecosystem function. This has the potential to directly affect qualifying features or have indirect effects on their prey source.</p>	<ul style="list-style-type: none"> Works will be undertaken in accordance with the EA Pollution Prevention Guidelines PPG 1, PPG 2, PPG5, PPG 6, PPG 7, PPG 8, PPG 18, PPG 21, PPG 26 and any other relevant guidance at the time of undertaking the works (noting that the PPGs have recently been withdrawn as the EA no longer provides guidance). Any vehicles used would be fully maintained in accordance with manufacturer's guidance and inspected before their use to ensure there are no signs of leaks. 	<p>The application of mitigation measures should reduce any adverse impacts upon the site to negligible.</p>
		<p>Spread of Invasive Species</p> <p>There is a potential for invasive species to be inadvertently introduced to European Sites resulting in impacts upon habitats which support qualifying features. These can be introduced by soil or organic material on footwear and vehicles. This would be considered displacement, and is therefore an ORNEC.</p>	<ul style="list-style-type: none"> Implement biosecurity protocols, to avoid the risk of transferring/introduction invasive species. 	<p>The application of mitigation measures should avoid any adverse impacts on SSSI qualifying features.</p>

¹¹ <http://jncc.defra.gov.uk/page-1680>

9 Conclusions

9.1 HRA Assessment

The first step of the HRA concluded that the Project is not directly connected with or necessary to the management of the designated sites for nature conservation.

The screening assessment used sources, pathways and receptors to determine if there was a mechanism potential for a likely significant effect as a result of the proposed beach management operations at West Kirby, Hoylake, Wallasey and New Brighton beaches. The screening assessment identified pathways with the Dee Estuary Ramsar SPA and SAC and the Mersey Narrows and North Wirral Foreshore Ramsar and SPA.

Potential effects assessed as a result of the implementation of the beach management operations included habitat loss / fragmentation, disturbance, water pollution and the spread of invasive species. Where a pathway was identified, the proposals were then screened to determine whether sources and mechanisms for effect exist with the interest features of those sites. Where a source and a mechanism were identified the beach operations were assessed to determine whether they would result in a likely significant effect.

The Screening assessment included the application of avoidance and reduction/mitigation measures. Where an effect is completely avoided, such as undertaking management operations outside of certain seasons, then the operation/ interest feature has been screened out and a conclusion of no likely significant effect has been made. Where complete avoidance is not possible but reduction measures have been applied so that a conclusion of no likely significant effect alone can be made, these operations/ interest features have been taken through to the in-combination assessment.

The in-combination chapter has identified that there are a variety of developments proposed within the study area, however due to the limited nature of the beach management operations, in-combination effects can be appropriately mitigated by good practice measures and there is no potential for LSE in-combination.


The HRA assessment concludes that there will be no likely significant effect either alone or in-combination with other projects upon qualifying features of the Dee Estuary Ramsar, SPA and SAC or the Mersey Narrows and North Wirral Foreshore SPA / Ramsar.

9.2 Application for SSSI Assent

The proposed works are situated within the Dee Estuary SSSI, North Wirral Foreshore SSSI and Mersey Narrows SSSI. An assessment was undertaken to support an application for assent from Natural England under section 28H of the WCA Act 1981. The assessment considered the potential effects upon the SSSI qualifying features from those Operations Requiring Natural England's Consent (ORNECs) listed on the SSSI notifications that may occur during the proposed works. Where impacts have been identified from ORNECs, measures have been applied which either avoid or reduce the impact to a negligible level.

Figures



Client:  **WIRRAL**

Project: WIRRAL BEACH OPERATIONS
HABITAT REGULATIONS ASSESSMENT

Title: **LOCATION PLAN**

AECOM
 Tel: +44 (0) 161 927 8200
 Fax: +44 (0) 161 927 8499
 www.aecom.com

Design: CS	GIS: JB
Chk'd: CS	App'd: CS
Date: 23/02/2016	Scale: 1:60,000
No: FIGURE 1	



Key
 Beach Area To Be Raked

AECOM
 Tel: +44 (0) 161 927 8200
 Fax: +44 (0) 161 927 8499
 www.aecom.com

Client:	
Project:	WIRRAL BEACH OPERATIONS HABITAT REGULATIONS ASSESSMENT

Title:	WEST KIRBY BEACH AREA TO BE RAKED
--------	--------------------------------------

Design:	JM	GIS:	JB
Chk'd:	JM	App'd:	CC
Date:	10/03/2016	Scale:	1:2,500
No:	FIGURE 2		



Client:	
Project:	WIRRAL BEACH OPERATIONS HABITAT REGULATIONS ASSESSMENT

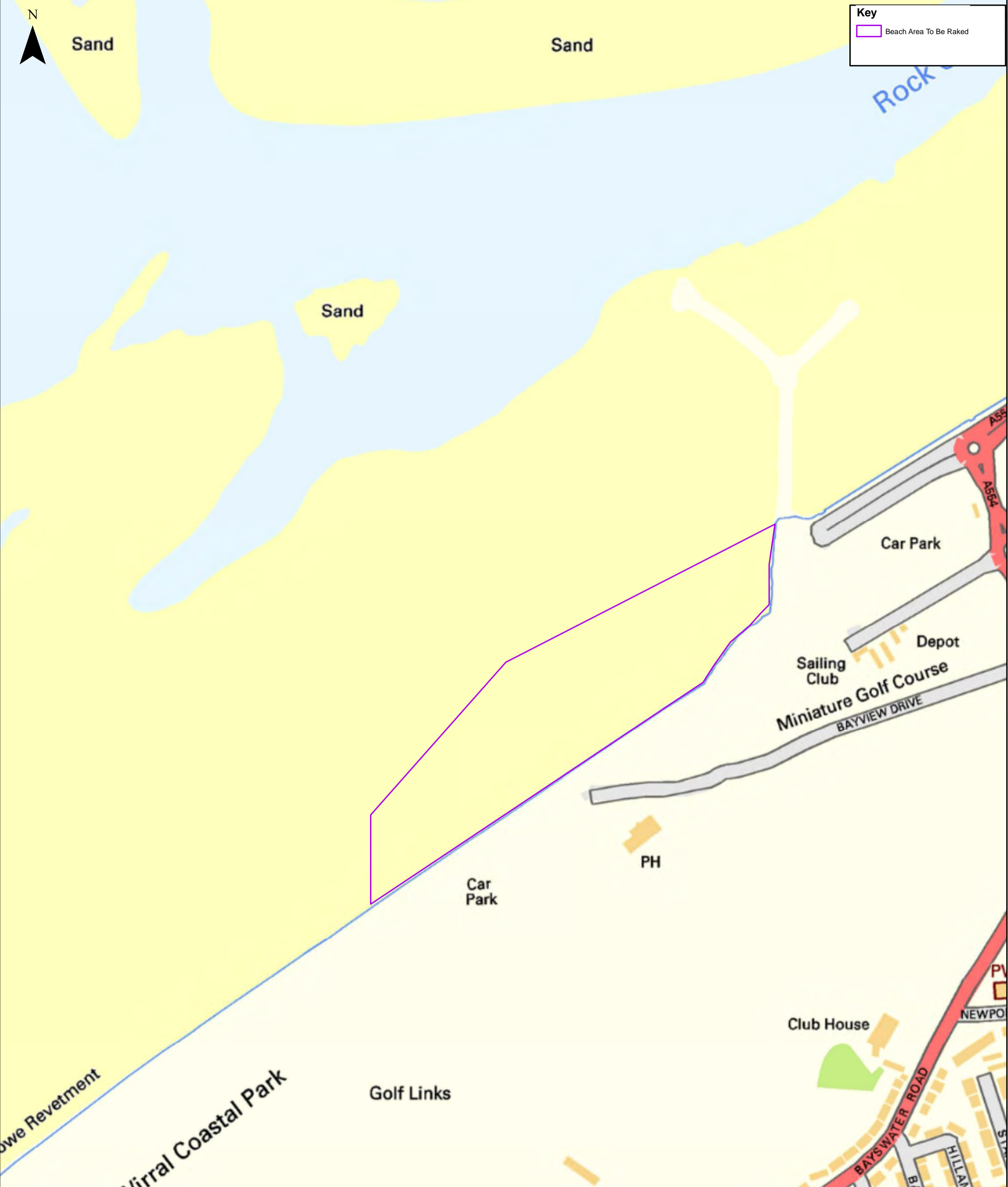
Title:	HOYLAKE BEACH AREA TO BE RAKED AND SPRAYED
--------	--

Design:	JM	GIS:	JB
Chk'd:	JM	App'd:	CC
Date:	23/02/2016	Scale:	1:7,500
No:	FIGURE 3		



Lynnfield House, Church Street,
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Key
 Beach Area To Be Raked



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 www.aecom.com

Client: **WIRRAL**

Project: WIRRAL BEACH OPERATIONS
 HABITAT REGULATIONS ASSESSMENT

Title: WALLASEY BEACH AREA
 TO BE RAKED

Design: JM	GIS: JB
Chk'd: JM	App'd: CC
Date: 23/02/2016	Scale: 1:4,000
No: FIGURE 4	



Key
 Beach Area To Be Raked

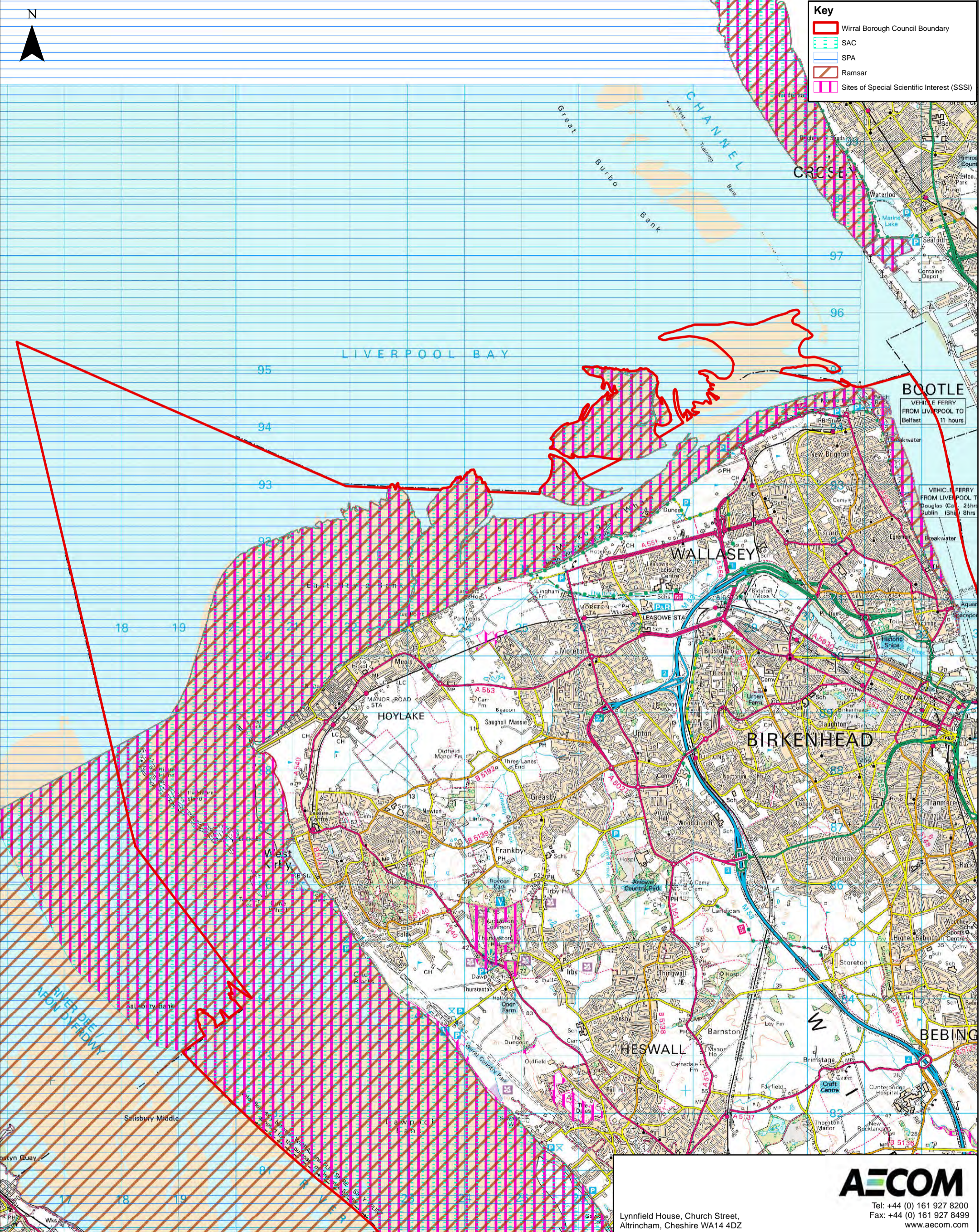
AECOM
 Tel: +44 (0) 161 927 8200
 Fax: +44 (0) 161 927 8499
 www.aecom.com

Client: **WIRRAL**

Project: WIRRAL BEACH OPERATIONS HABITAT REGULATIONS ASSESSMENT

Title: NEW BRIGHTON BEACH AREA TO BE RAKED

Design: JM	GIS: JB
Chk'd: JM	App'd: CC
Date: 23/02/2016	Scale: 1:3,000
No: FIGURE 5	



Key

- Wirral Borough Council Boundary
- SAC
- SPA
- Ramsar
- Sites of Special Scientific Interest (SSSI)

AECOM

Tel: +44 (0) 161 927 8200
 Fax: +44 (0) 161 927 8499
 www.aecom.com

Lynnfield House, Church Street,
 Altrincham, Cheshire WA14 4DZ

Client:	
Project:	WIRRAL BEACH OPERATIONS HABITAT REGULATIONS ASSESSMENT

Title:	DESIGNATED ECOLOGICAL SITES
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Design:	CS	GIS:	JB
Chk'd:	CS	App'd:	CS
Date:	23/02/2016	Scale:	1:60,000
No:	FIGURE 6		

Appendix A

9.3 Environment Agency Herbicide Licences at Hoylake Beach

**Mr Josef Hanik
Leasowe Lighthouse
North Wirral Coastal Park
(Off) Pasture Road
Moreton
Wirral
CH46 4TA**

**Our ref: HERBC000694 &
HERBC000746**

Your ref:

Date: 16 August 2010

Dear Mr Hanik,

Food and Environment Protection Act 1995 (Control of Pesticides Regulations 1986, as amended) – request for Environment Agency agreement to the use of herbicides to control the growth of weeds near to a water body – reference number: HERBC000694 & HERBC000746

The Agency has no objection to you proceeding with the use of herbicides near water at Hoylake between national grid reference SJ 2150 8950 and SJ 2200 9000 which is near to the Dee Estuary between April & November 2010 – 2013 provided that:

- 1) The application proceeds as notified on form AqHerb01. If you change the way you propose to proceed you will need to resubmit your application for agreement.
- 2) The manufacturers' instructions and the Control of Pesticide Regulations 1986 are complied with;
- 3) Spraying is carried out in the correct conditions and kept to a minimum;
- 4) No other product (i.e. an adjuvant) is used unless it is approved for use in or near water.
- 5) Care is taken to avoid the potential contamination of any nearby abstractions.
- 6) No other legal water interests are affected.
- 7) Spraying with Roundup BioActive Gold and mechanical raking may take place between April and November 2010 until 2015, at low water and avoiding times when large populations of bird are present at the site. Any spraying or raking outside of this time frame can only be undertaken with the prior agreement of Natural England.
- 8) The area to be sprayed and/or mechanically raked is maintained as a high water roost and any spraying activity reflects this protection by ceasing at high water when birds are present.

- 9) All spraying is undertaken by a qualified person and follows the protocols set down by the herbicide manufacturer and the Environment Agency as regards its use.

We know of no surface water abstractions within 500 m of the site.

Smaller private water supplies do not require an abstraction licence from us and we are therefore not able to provide details of these abstractions to you. The proposed operation however should not affect any other lawful water uses such as these.

Thank you for your co-operation with this matter.

Yours sincerely,

Georgina Fellows
Biodiversity Technical Specialist

For telephone enquiries please ring: Becky McAllister 01772 714027

9.4 Natural England Consent for Activities at Hoylake Beach

10th August 2010

Josef Hanik
Senior Ranger – Wirral's Coast
North Wirral Coastal Park,
Leasowe Lighthouse
Pasture Road,
Moreton,
Wirral
CH46 4TA



Wirral to Wyre Team
North West Area
Crewe Business
Park
Electra Way
Crewe
CW1 6GJ

T 0300 060 4651
M 07795 316 922

By email – No hard copy to follow

To Josef Hanik on behalf of Metropolitan Borough of Wirral,

The Dee Estuary SSSI, SAC, SPA & Ramsar site North Wirral Foreshore SSSI Mersey Narrows & North Wirral Foreshore pSPA & pRamsar

Assent of Natural England under Section 28H of the Wildlife and Countryside Act 1981 (as amended)

Thank you for your notice dated 8th June 2010 regarding the proposed activities Wirral Council wish to undertake on the amenity beach stretching from the Hoyle Road Slipway to Hilbre Point as documented in the Hoylake Site Management Agreement. These activities, as listed in the Hoylake Site Management Agreement are to:

- spray both *Spartina anglica* and *Puccinellia maritima* using the approved herbicide Roundup BioActive Gold
- spraying of isolated *Spartina anglica* clumps using the approved herbicide Roundup BioActive Gold with hand held lance sprayer (as documented on supplementary map)
- mechanically rake the amenity beach using either a comb rake or a Barber Surf rake
- the removal of accumulated windblown sand and for it to be 'recycled' within the protected site

The proposed operations are within the Dee Estuary SSSI, SAC, SPA & Ramsar site, the North Wirral Foreshore SSSI and the Mersey Narrows & North Wirral Foreshore pSPA & pRamsar site. However, given the details within the documentation submitted alongside this request, including an Appropriate Assessment with respect to the international designations, it is the opinion of Natural England that the works will not significantly impact on any of these designated sites.

As such Natural England gives assent to the Metropolitan Borough of Wirral to undertake the proposals made in your notice of 8th June 2010 under S28H of the Wildlife and Countryside Act 1981 (as amended) but with the following caveats:

1. That spraying with Roundup BioActive Gold and mechanical raking may take place between April and November 2010 until 2015, at low water and avoiding times when large populations of bird are present at the site. Any spraying or raking outside of this time frame can only be undertaken with the prior agreement of Natural England.
2. That the area to be sprayed and/or mechanically raked is maintained as a high water roost and any spraying activity reflects this protection by ceasing at high water when birds are present.
3. That all spraying is undertaken by a qualified person and follows the protocols set down by the herbicide manufacturer and the Environment Agency as regards its use.

Natural England also brings to your attention that, as a S28G body of the Wildlife & Countryside Act 1981 (as amended), you are required to take reasonable steps, consistent with the proper exercise of your functions to further the conservation and enhancement of the SSSI.

If you wish to change the proposed operation, or carry out additional operations for which assent has not yet been given, or if a time period given in your letter of date has expired, you are required to give further written notice to Natural England.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Kate Mudie', written over a faint circular stamp or watermark.

Kate Mudie

Marine Advisor

Wirral to the Wyre Team

Appendix B

Table B1: Dee Estuary SAC & Dee Estuary Ramsar Criterion 1 & 2 Qualifying Features present by Beach

Dee Estuary SAC Interest feature	Sub-feature	West Kirby	Hoylake	Wallasey	New Brighton	Taken through to screening
Estuaries	Annual vegetation of drift lines	–	–	–	–	Annual vegetation of drift lines will not be taken through to screening
	Notable hard substrate communities	–	–	–	–	Notable hard substrate communities will not be taken through to screening
Mudflats and sandflats not covered by seawater at low tide	Gravel and clean sand communities	✓	✓	✓	–	Gravel and clean sand communities will be taken through to screening for West Kirby, Hoylake and Wallasey beaches
	Muddy sand communities including cocklebeds	–	✓	–	–	Muddy sand communities including cocklebeds will be taken through to screening for Hoylake beach
	Mud communities	–	–	–	–	Mud communities will not be taken through to screening
	Mud flats and sand flat not surveyed	–	–	–	–	Mud flats and sand flat not surveyed will not be taken through to screening
Annual vegetation of driftlines (outside the area encompassed within the estuary feature)	–	–	–	–	–	Annual vegetation of drift lines will not be taken through to screening
Vegetated sea cliffs	–	–	–	–	–	Vegetated sea cliffs will not be taken through to screening
<i>Salicornia</i> and other annuals colonising mud and sand	Possible pioneer low marsh communities	–	–	–	–	Possible pioneer low marsh communities will not be taken through to screening
	Pioneer low marsh communities	–	–	–	–	Pioneer low marsh communities will not be taken through to screening
	Ephemeral saltmarsh vegetation	–	–	–	–	Pioneer low marsh communities will not be taken through to screening
Atlantic salt meadow	Mosaic of saltmarsh communities/saltpans	✓	–	–	–	Mosaic of saltmarsh communities/saltpans will be taken through to screening for West Kirby beach
	Low to mid marsh communities	✓	–	–	–	Low to mid marsh communities will be taken through to screening for West Kirby beach
	Mid to upper marsh communities	✓	–	–	–	Mid to upper marsh communities will be taken through to screening for West Kirby beach
	Transitional high marsh communities	–	–	–	–	Transitional high marsh communities will not be taken through to screening
Embryonic shifting dunes	–	–	–	–	–	Embryonic shifting dunes will not be taken through to screening
Shifting dunes along shoreline	–	–	–	–	–	Shifting dunes along shoreline will not be taken through to screening
Fixed coastal dunes	–	–	–	–	–	Fixed coastal dunes will not be taken through to screening
Humid dune Slacks	–	–	–	–	–	Humid dune slacks will not be taken through to screening
Intertidal hard substrate communities	–	–	–	–	–	Intertidal hard substrate communities will not be taken through to screening
Breeding colony of Natterjack Toad		No records indicate presence and no suitable habitat present (coastal sand dune systems, and sandy heaths)				Natterjack Toad, <i>Epidalea calamita</i> will not be taken through to screening
Sea lamprey		As the Dee Estuary is used as a migratory route, there is potential for sea lamprey to be present				Sea lamprey will be taken through to screening
River lamprey		As the Dee Estuary is used as a migratory route, there is potential for river lamprey to be present				River lamprey will be taken through to screening
Petalwort		No suitable habitat present (humid dune slack)				Petalwort will not be taken through to screening

Table B2: Dee Estuary SPA/ Ramsar Qualifying Features Presence near the Beaches

Commentary on habitat preference has been provided for species as indicated from the sources reviewed, provided in Section 5.2. . Text in red details an absence for species in beach management areas due to habitat preferences and therefore is scoped out from further assessment.

Dee Estuary Season	Interest Feature	Comments / Baseline	West Kirby	Hoylake	Taken through to Screening
During the breeding season-	Common Tern <i>Sterna hirundo</i>	<p>Nest scrapes in sand/gravel/shingle (i.e. beaches) in open, close to water. Breeding locations require no inundation at high tide and protected from disturbance, therefore limited availability in most areas.</p> <p>Roost requirements similar but could be on unsuitable habitat for nesting (e.g. rock outcrops) that are not inundated but protected from predators.</p> <p>Roosts usually on flat open land, like beaches, mudflats, rocks.</p> <p>Habitat choices/locations notoriously changeable but could be site faithful where conditions are suitable.</p>	No suitable habitat for breeding common terns due to presence of West Kirby Marine Lake.	Roost site on a structure off shore to the north of Royal Liverpool Golf Course.	Common Tern <i>Sterna hirundo</i> will be taken through to screening for Hoylake beach.
	Little Tern <i>Sterna albifrons</i>	<p>For breeding little tern prefers linear strips of bare shingle, shell-beach, or sand, only just above normal tide or flood limits and often only a few metres from shallow clear water, saline or fresh, where fish of suitable size can be caught by plunging, without necessity for extended foraging flights.</p> <p>Breeding habits make it very vulnerable to predation and persecution so colonies can appear to be transient.</p> <p>For roosting little tern prefers open ground such as shingle, sand, or mudflats near high-water mark.</p>	No suitable habitat for breeding common terns due to presence of West Kirby Marine Lake	Roost site off shore to the north of Royal Liverpool Golf Course.	Little Tern <i>Sterna albifrons</i> will be taken through to screening for Hoylake beach.
On passage	Sandwich Tern <i>Sterna sandvicensis</i>	Roosts in dense colonies on beaches, mudflats, salt pans, and occasionally grassy fields; also on piers, buoys, and driftwood. On the Wirral this species favours sand and mudflats.	No suitable habitat for sandwich tern due to presence of West Kirby Marine Lake.	Roost site off shore to the north of Royal Liverpool Golf Course.	Sandwich Tern <i>Sterna sandvicensis</i> will be taken through to screening for Hoylake beach.
	Redshank <i>Tringa totanus</i>	<p>Redshank is amongst the frailest of waders and is particularly susceptible to freezing conditions, so our relatively warm and sheltered west-coast estuaries may be of especial value for them (Norman & Coffey 1994).</p> <p>At high tides they flock to roost on the edge of the saltmarsh.</p>	<p>Adjacent to mixed wader roost site at high water north of West Kirby Marine Lake.</p> <p>No suitable foraging habitat due to Marine Lake.</p>	<p>One roost site located on foreshore adjacent to North Parade.</p> <p>Second roost site recorded to the east of Meols Parade to the west of Wirral Beach Caravan Park.</p> <p>Various low tide feeding areas present in area.</p>	Redshank <i>Tringa totanus</i> will be taken through to screening for both beaches
Over winter	Bar-tailed Godwit <i>Limosa lapponica</i>	<p>Sensitive to disturbance so this is likely to be a factor in roost selection. Roosts on or close to beach above high water.</p> <p>Suitable conditions probably rare within the SPA.</p> <p>The Atlas map indicates that birds utilise the north Wirral coast and the outer parts of the Dee estuary and are seldom found away from tidal areas.</p> <p>Forage on exposed intertidal mudflats.</p>	<p>Adjacent to mixed wader roost site at high water.</p> <p>Unlikely to be foraging in area due to the presence of recreational pressures at Marine Lake.</p>	<p>Adjacent to mixed wader roost site at high water.</p> <p>Potential for birds to forage on exposed intertidal mudflats present.</p>	Bar-tailed Godwit <i>Limosa lapponica</i> will be taken through to screening for both beaches.
	Black-tailed Godwit <i>Limosa limosa islandica</i>	Black-tailed godwits feed on oligochaetes, other worms and probably gastropods. Preferred habitat is muddy estuaries, with fine sediments rather than sand, and tends to forage offshore.	No suitable habitat for black tailed godwit within area due to presence of West Kirby Marine Lake.	No suitable roosting or foraging habitat for black tailed godwit.	Black-tailed Godwit <i>Limosa limosa islandica</i> will Not be taken through to Screening

Dee Estuary Season	Interest Feature	Comments / Baseline	West Kirby	Hoylake	Taken through to Screening
		They roost in tight groups at high water, often on inland pastures some distance from the coast (Brown et al 2005).			
	Curlew <i>Numenius arquata</i>	Curlew favours mudflats and sands extensively exposed at low tide. Like most waders, at high water curlew form large roosts on either the highest saltings or on fields and marshes behind the sea walls.	Adjacent to mixed wader roost site at high water. Unlikely to be foraging in area due to the presence of recreational pressures at Marine Lake.	Limited low tide feeding areas recorded. Adjacent to roost site in neighbouring area.	Curlew <i>Numenius arquata</i> will be taken through to screening for both beaches
	Dunlin <i>Calidris alpina alpina</i>	For roosting during high tides this species prefers large fields of naturally fertilised short pasture or soil-based crops with few vertical structures that could be used by predators (Shepherd and Lank 2004). Forages on mostly polychaete worms and small gastropods, as well as insects (dipteran flies and beetles), crustaceans, bivalves, plant matter and occasionally small fish (Cramp and Simmons 1977, del Hoyo et al. 1996), lakes and dams (Hockey et al. 2005). For roosting during high tides and at night this species prefers large fields of naturally fertilised short pasture or soil-based crops with few vertical structures that could be used by predators (Shepherd and Lank 2004).	Adjacent to mixed wader roost site at high water. Unlikely to be foraging in unit due to the presence of recreational pressures at Marine Lake.	Roosts located at Red Rock and North Parade. Low tide feeding areas located offshore.	Dunlin <i>Calidris alpina alpina</i> will be taken through to screening for both beaches.
	Grey Plover <i>Pluvialis squatarola</i>	Grey plovers feed on a wide variety of invertebrate food taken both by day and night from the upper and the middle shore (Brown et al 2005). Grey plovers are likely to be spread rather thinly across sand and mudflats. Grey Plovers are seldom found in winter inland and away from tidal areas. Easily disturbed wader and vulnerable to adverse weather conditions.	Adjacent to mixed wader roost site at high water. Unlikely to be foraging in area due to the presence of recreational pressures at Marine Lake.	Roost location recorded at North Parade.	Grey Plover <i>Pluvialis squatarola</i> will be taken through to screening for both beaches.
	Red Knot <i>Calidris canutus</i>	They roost in sheltered and undisturbed locations in tight flocks.	Species present foraging offshore within all adjacent areas. Potential for species to use habitat in the future but no records available to indicate current use.	Roost recorded at North Parade. Potential for birds to forage on exposed intertidal mudflats present.	Knot <i>Calidris canutus</i> will be taken through to screening for both beaches
	Oystercatcher <i>Haematopus ostralegus</i>	Species is coastal, frequenting estuarine mudflats, saltmarshes and sandy and rocky shores (del Hoyo <i>et al.</i> 1996). Forage on cockles, mussels and smaller shellfish.	Within low water feeding area offshore Area is subject to recreational disturbance from the marine lake and therefore more favourable roosting habitat in the south of the Dee Estuary.	One recorded roost site located at Red Rock and another north of North Parade Road. Roost sites recorded inland at Hoylake and at Wirral Beach Caravan Club. Limited foraging on intertidal habitat.	Oystercatcher <i>Haematopus ostralegus</i> will be taken through to screening for both beaches.
	Pintail <i>Anas acuta</i>	At this site preference is for saltmarsh habitat. Wide dietary range but general preference for plant material in autumn/winter so likely to be found on or close to this habitat.	This area does not support the dietary food source (saltmarsh) for pintail. Saltmarsh present in the south of the Dee Estuary offers good foraging, roosting and shelter opportunities.	This area does not support the dietary food source (saltmarsh) for pintail. Saltmarsh present in the south of the Dee Estuary offers good foraging, roosting and shelter opportunities.	Pintail <i>Anas acuta</i> will Not be taken through to Screening
	Shelduck <i>Tadorna tadorna</i>	The species shows a preference for saline habitats and frequents mudflats Its diet consists predominantly of salt-water molluscs, aquatic invertebrates, small fish, fish spawn and plant material. Seeks shelter and food source in saltmarsh habitat.	Habitat preference indicates that this bird may utilise habitat present in the future. Saltmarsh present in the south of the Dee Estuary offers roosting and shelter opportunities.	Habitat preference indicates that this bird may utilise habitat present in the future. Saltmarsh present in the south of the Dee Estuary offers roosting and shelter opportunities.	Shelduck <i>Tadorna tadorna</i> will be taken through to screening for both beaches.
	Teal <i>Anas crecca</i>	Favours saltmarsh at this location. Possibly because this species is generally a seed eater in autumn and winter and habitat conditions suitable (see below).	This area does not support the dietary food source (saltmarsh) for teal. Saltmarsh present in the south of the Dee Estuary offers good foraging, roosting and shelter opportunities.	This area does not support the dietary food source (saltmarsh) for teal. Saltmarsh present in the south of the Dee Estuary offers good foraging, roosting and shelter opportunities.	Teal <i>Anas crecca</i> will Not be taken through to Screening

Dee Estuary Season	Interest Feature	Comments / Baseline	West Kirby	Hoylake	Taken through to Screening
		Generally at home on any kind of water except deep and lifeless, fast-running, exposed, or wave-troubled. Will adapt to open habitats such as shallow tidal coasts, large estuaries, salt-marshes, and lagoons, brackish or saline.			
	Sanderling <i>Calidris alba</i> (forms part of the Wintering waterfowl assemblage)	Roosts on sandy shore, shingle bank, saltmarsh, groynes and intertidal mudflats in the other SPAs. Feeds on intertidal sands. Dee estuary holds 5-10% of the Eastern Atlantic northwest regional population of this species. Apparent absence cannot be explained from available information.	Habitat preference indicates that this bird may utilise habitat present in the future.	Roost recorded at North Parade. Potential for birds to forage on intertidal habitat present.	Sanderling <i>Calidris alba</i> (forms part of the Wintering waterfowl assemblage) will be taken through to screening for both beaches.
	Cormorant <i>Phalacrocorax carbo</i> (forms part of the Wintering waterfowl assemblage)	Roosts quite widely within wider area on groynes and other structures. In the Dee possibly favours saltmarsh for roosting due to protection offered and lack of disturbance. The species predominately feeds on fish and has a wide foraging area which can range up to 20-25 km from its wintering roost location.	Common species and likely to be present in this area.	Roosting location recorded off Red Rock. Potential for cormorant to be foraging in area.	Cormorant <i>Phalacrocorax carbo</i> will be taken through to screening for both beaches.
	Wigeon <i>Anas penelope</i> (forms part of the Wintering waterfowl assemblage)	Herbivorous – habitat choice probably reflects saltmarsh distribution and general avoidance of fast flowing waters (and presumably strong tidal surge/current).	This area does not support the dietary food source for wigeon which is saltmarsh. Saltmarsh present in the south of the Dee Estuary offers good foraging opportunities, and slower moving tidal currents that would favour this species.	This area does not support the dietary food source for wigeon which is saltmarsh. Saltmarsh present in the south of the Dee Estuary offers good foraging opportunities, and slower moving tidal currents that would favour this species.	Wigeon <i>Anas penelope</i> will Not be taken through to Screening.
	Mallard <i>Anas platyrhynchos</i> (forms part of the Wintering waterfowl assemblage)	Omnivorous and saltmarsh likely to provide food and cover. On coasts tends to favour relatively shallow sheltered waters within sight of land.	This area does not support the dietary food source (saltmarsh) for mallard. It is present in the south of the Dee Estuary offering good foraging, roosting and shelter opportunities.	This area does not support the dietary food source (saltmarsh) for mallard. It is present in the south of the Dee Estuary offering good foraging, roosting and shelter opportunities.	Mallard <i>Anas platyrhynchos</i> will Not taken through to screening.
	Lapwing <i>Vanellus vanellus</i> (forms part of the Wintering waterfowl assemblage)	This wader is not strictly limited to coastal habitat in winter and may be found inland. During the winter the species utilises large open pastures for roosting purposes.	Feeding area offshore Area located in an urban area which is subject to recreational disturbance and therefore more favourable roosting habitat in the south of the Dee Estuary	Habitat preference indicates that this bird may utilise habitat present within the area in the future.	Lapwing <i>Vanellus vanellus</i> (forms part of the Wintering waterfowl assemblage) will be taken through to screening for both beaches.
	Great Crested Grebe <i>Podiceps cristatus</i> (forms part of the Wintering waterfowl assemblage)	Grebes are diving waterbirds, feeding on small fish and aquatic invertebrates. In winter they can be found in gravel-pits, estuaries, deep lakes, coastal pools, reservoirs and off the coast in inshore waters.	Habitat preference indicates that this bird may utilise habitat present within the area in the future.	Habitat preference indicates that this bird may utilise habitat present in the area in the future.	Great Crested Grebe <i>Podiceps cristatus</i> (forms part of the Wintering waterfowl assemblage) will be taken through to Screening

Table B3: Presence of Mersey Narrows and North Wirral Foreshore SPA/ Ramsar Qualifying Features per Beach. Commentary on habitat preference has been provided for species as indicated from the sources reviewed, provided in Section 5.2. Text in red details an absence for species in beach management areas due to habitat preferences and therefore is scoped out from further assessment.

North Wirral Season	Interest feature	Comments / baseline	Hoylake	Wallasey	New Brighton	Taken through to screening
Overwintering and breeding	Common Tern <i>Sterna hirundo</i>	<p>Nest scrapes in sand/gravel/shingle (i.e. beaches) in open, close to water. Breeding locations require no inundation at high tide and protected from disturbance, therefore limited availability in most areas.</p> <p>Roost requirements similar but could be on unsuitable habitat for nesting (e.g. rock outcrops) that are not inundated but protected from predators.</p> <p>Roosts usually on flat open land, like beaches, mudflats, rocks.</p> <p>Habitat choices/locations notoriously changeable but could be site faithful where conditions are suitable.</p>	Roost site off shore to the north of Royal Liverpool Golf Course.	Habitat preference indicates that this bird may utilise habitat present within this area in the future but no records to indicate current use.	Due to the urban nature of this area, there is a lack of suitable beaches to support species.	Common Tern <i>Sterna hirundo</i> will be taken through to screening for Hoylake and Wallasey beaches.
Overwintering & Assemblage of overwintering birds	Little Gull <i>Hydrocoloeus minutus</i>	<p>During winter this species is found along the coast on sandy and muddy beaches (Olsen and Larsson 2003), mouths of rivers (del Hoyo et al. 1996) and at sea (Olsen and Larsson 2003), especially at stream and sewage outlets.</p> <p>Its diet during the winter switches to a diet of small fish and marine invertebrates (del Hoyo et al. 1996), (Urban et al. 1986).</p> <p>This species feeds by dipping to the water's surface to catch prey, by plucking prey from the surface while swimming, or sometimes by plunge-diving into the water.</p>	Habitat preference indicates that this bird may utilise habitat present within this area in the future but no records to indicate current use.	Habitat preference indicates that this bird may utilise habitat present within this area in the future but no records to indicate current use.	Habitat preference indicates that this bird may utilise habitat present within this area in the future but no records to indicate current use.	Little Gull <i>Hydrocoloeus minutus</i> will be taken through to all beaches.
	Bar-tailed Godwit <i>Limosa lapponica</i>	<p>Sensitive to disturbance so this is likely to be a factor in roost selection. Roosts on or close to beach above high water.</p> <p>Suitable conditions probably rare within the SPA.</p> <p>The Atlas map indicates that birds utilise the north Wirral coast and the outer parts of the Dee estuary and are seldom found away from tidal areas.</p> <p>Forage on exposed intertidal mudflats.</p>	<p>Adjacent to mixed wader roost site at high water.</p> <p>Potential for birds to forage on exposed intertidal mudflats present.</p>	<p>Intertidal habitat is used by foraging bar tailed godwit.</p> <p>Potential for species to use area for roosting purposes.</p>	Due to the urban nature of this area, there is a lack of suitable beaches above high water to support species.	Bar-tailed Godwit <i>Limosa lapponica</i> will be taken through to screening for Hoylake and Wallasey beaches.
	Redshank <i>Tringa totanus</i>	<p>Redshank is amongst the frailest of waders and is particularly susceptible to freezing conditions, so the relatively warm and sheltered west-coast estuaries may be of especial value for them (Norman & Coffey 1994).</p> <p>Redshanks feed, singly or in small groups, on the mudflats, taking small molluscs and crustaceans, and various worms.</p>	<p>One roost site located on foreshore adjacent to North Parade.</p> <p>Second roost site recorded to the east of Meols Parade to the west of Wirral Beach Caravan Park.</p> <p>Numerous low tide feeding areas recorded.</p>	<p>Two roosts sites have been recorded along the coastline at Mockbeggar and near the groynes at Leasowe.</p> <p>Intertidal habitat is used by foraging redshank.</p>	<p>One roost located at Perch Rock.</p> <p>Habitat preference indicates that redshank may use the unit for foraging purposes in the future however no records indicate current use.</p>	Redshank <i>Tringa totanus</i> will be taken through to screening for all beaches.
	Dunlin <i>Calidris alpina alpina</i>	<p>For roosting during high tides this species prefers large fields of naturally fertilised short pasture or soil-based crops with few vertical structures that could be used by predators (Shepherd and Lank 2004).</p> <p>Forages on mostly polychaete worms and small gastropods, as well as insects (dipteran flies and beetles), crustaceans, bivalves, plant matter and</p>	<p>One recorded roost site located at Red Rock and another north of North Parade Road.</p> <p>Offshore foraging activity recorded.</p>	<p>Small wader roosts noted along the shore of Wallasey.</p> <p>Dunlin foraging sporadically across the intertidal habitat. Roost</p>	<p>No exposed intertidal habitat suitable for foraging dunlin within unit</p> <p>Area is urban and does not offer suitable</p>	Dunlin <i>Calidris alpina alpina</i> will be taken through to screening for Hoylake and Wallasey beaches.

North Wirral Season	Interest feature	Comments / baseline	Hoylake	Wallasey	New Brighton	Taken through to screening
		occasionally small fish (Cramp and Simmons 1977, del Hoyo et). For roosting during high tides and at night this species prefers large fields of naturally fertilised short pasture or soil-based crops with few vertical structures that could be used by predators (Shepherd and Lank 2004).		sites recorded inland and wader roost noted at Mockbeggar Wharf.	conditions for roosting dunlin.	
	Red Knot <i>Calidris canutus</i>	They roost in sheltered and undisturbed locations in tight flocks. Species takes intertidal invertebrates such as bivalve and gastropod molluscs, crustaceans (del Hoyo et al. 1986) (e.g. horseshoe crab <i>Limulus</i> spp. eggs) (Karpanty et al. 2006), annelid worms and insects.	One recorded roost site located at Red Rock and another north of North Parade Road Potential for birds to forage on exposed intertidal mudflats present in the area.	Wader roost noted at Mockbeggar Wharf. Potential for knot to be present. Numerous low tide feeding areas recorded in area.	No exposed intertidal habitat suitable for foraging red knot within area Area is urban of nature and does not offer suitable conditions for roosting or foraging red knot.	Knot <i>Calidris canutus</i> will be taken through to screening for Hoylake and Wallasey beaches..
	Grey Plover <i>Pluvialis squatarola</i>	Grey plovers feed on a wide variety of invertebrate food taken both by day and night from the upper and the middle shore' Brown et al 2005) Grey plovers are likely to be spread rather thinly across sand and mudflats. Grey Plovers are seldom found in winter inland and away from tidal areas. Easily disturbed wader and vulnerable to adverse weather conditions.	One recorded roost site north of North Parade Road Potential for birds to forage on exposed intertidal mudflats present in the unit	Wader roost noted at Mockbeggar Wharf. Potential for grey plover to be present. Low tide feeding areas within area.	No exposed intertidal habitat suitable for foraging grey plover within the area Area is urban of nature and does not offer suitable conditions for roosting or foraging grey plover	Grey Plover <i>Pluvialis squatarola</i> will be taken through to screening for Hoylake and Wallasey beaches.
	Oystercatcher <i>Haematopus ostralegus</i>	Species is coastal, frequenting estuarine mudflats, saltmarshes and sandy and rocky shores (del Hoyo <i>et al.</i> 1996). Forage on cockles, mussels and smaller shellfish.	One recorded roost site located at Red Rock and another north of North Parade Road. Roost sites recorded inland at Hoylake and at Wirral Beach Caravan Club on the boundary. Limited foraging on intertidal habitat.	Record of roost within policy unit at Mockbeggar Wharf and behind two groynes at Leasowe. Beach behind defence may support sheltered areas which may be used by Oystercatcher. Intertidal habitat is used by foraging oystercatcher.	Potential for species to use area for roosting purposes.	Oystercatcher <i>Haematopus ostralegus</i> will be taken through to screening for all beaches.
	Cormorant <i>Phalacrocorax carbo</i>	Roosts quite widely within wider area on groynes and other structures. Potentially favours saltmarsh for roosting due to protection offered and lack of disturbance.	One recorded roost site located at Red Rock.	Habitat preference indicates that this bird may utilise habitat present within this area in the future.	Area is urban of nature and does not offer undisturbed habitat for roosting. More favourable habitat present in south of Mersey Estuary. Potential for species to use area for foraging purposes.	Cormorant <i>Phalacrocorax carbo</i> will be taken through to screening for Hoylake and Wallasey beaches..
	Sanderling <i>Calidris alba</i>	Roosts on sandy shore, shingle bank, saltmarsh, groynes and intertidal mudflats in the other SPAs. Feeds on intertidal sands. Dee estuary holds 5-10% of the EA northwest regional population of this species. Apparent absence cannot be explained from available information Records indicate presence along tidal exposed foreshores.	Roost recorded at North Parade Potential for birds to forage on intertidal habitat present in the area.	Numerous areas of low tide feeding areas within the area. Potential for species to use area for roosting purposes.	No exposed intertidal habitat suitable for foraging sanderling within area. Area is urban of nature and does not offer suitable conditions for roosting or foraging sanderling.	Sanderling <i>Calidris alba</i> will be taken through to screening for Hoylake and Wallasey beaches.