

## **Appendix C**

### **2021 Terrestrial Survey Reports**



## **LITTLE OAKLEY MANAGED REALIGNMENT**

### **FISHER'S ESTUARINE MOTH SURVEY**

*September 2021*

Prepared by Essex Ecology Services Ltd.

EECOS

Abbotts Hall Farm, Great Wigborough, Colchester, Essex, CO5 7RZ

Company Registered No. 2853947

VAT Registered No. 945 7459 77

*Professional ecological services applying local knowledge and experience*

**ESSEX ECOLOGY SERVICES Ltd.  
EECOS**

Title of Report	Little Oakley Managed Realignment Fisher's Estuarine Moth Survey
Client	Hutchison Port Holdings Ltd
Client Representatives	Matthew Simpson, Technical Director, Environment Royal Haskoning DHV UK Ltd
Survey Completed By	Charlotte Smith BSc QCIEEM, Assistant Ecologist
Author	Charlotte Smith BSc QCIEEM, Assistant Ecologist
Approved By	Pat Hatch MCIEEM, Principal Ecologist
Report Status	Final
Date of Issue	28/09/2021

This report has been compiled in accordance with BS 42020:2013 Biodiversity Code of practice for planning and development, as has the survey work to which it relates.

The information, data, advice and opinions which have been prepared and provided are true and have been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional *bona fide* opinions.

The impact assessment and recommendations set out in this report are based on professional experience and available guidelines.

The contents of this report should not be taken to indicate support of any planning application or subsequent development, on the part of EECOS or its parent company, Essex Wildlife Trust. Essex Wildlife Trust reserves the right to object to, or comment upon, any planning application that may arise on this site should any unacceptable wildlife impacts remain unresolved or should any relevant planning policies be compromised.

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Map 1 - Hogs Fennel north sea wall section location map

Map 2 - Hogs Fennel south sea wall section location map

Appendix 1 - Photographs

**LITTLE OAKLEY MANAGED REALIGNMENT**  
**FISHER'S ESTUARINE MOTH SURVEY**

**1. EXECUTIVE SUMMARY**

- 1.1 This report has been produced by Essex Ecology Services Ltd for Hutchison Port Holdings Limited. It comprises the results of a Fisher's Estuarine moth survey carried out at a proposed habitat creation site at Little Oakley, Harwich, Essex.
- 1.2 The survey was undertaken on 25<sup>th</sup> August 2021. Hogs Fennel plants were located and surveyed for Fisher's Estuarine moth larval feeding signs. This involved searching the base of each plant where accessible for 'frass volcanoes'.
- 1.3 The survey yielded records of approximately 296 Hogs Fennel plants, of which 114 had confirmed frass volcanoes while another 118 had no evidence and a further 64 were inaccessible.
- 1.4 Due to the presence of Fisher's Estuarine moth on site, a mitigation licence will need to be obtained from Natural England and appropriate mitigation in the form of translocation and planting will be required as part of the habitat creation scheme.

## **2. INTRODUCTION**

### **2.1 General Introduction**

This report has been prepared by Essex Ecology Services Ltd. (EECOS), the ecological consultancy of Essex Wildlife Trust, for Hutchison Port Holdings Limited. It comprises the results of a survey to locate Hogs Fennel plants and those that have evidence of use by the endangered Fisher's Estuarine Moth at a proposed habitat creation site at Little Oakley, Essex.

### **2.2 Location and Description of the Site**

Map 1 provides an illustration of the location of Hogs Fennel plants and evidence of use by Fisher's Estuarine Moth.

### **2.3 Objectives of Survey**

The objective of the survey was to locate the Hogs Fennel and identify which plants were supporting Fisher's Estuarine moth larvae.

### **2.4 Survey Methodology**

Survey work was undertaken on 25<sup>th</sup> August 2021.

During the survey visit, some time was spent looking for Hogs Fennel plants and searching for the caterpillars excreted material ('frass volcanoes'), which arise at the base of plants as the larvae burrow into them.

### **2.5 Competence**

Charlotte Smith has been with the company since September 2020 after previously working with EECOS as an intern. She has completed a BSc in Zoology and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She has undertaken numerous ecological site appraisals, habitat assessments and a wide range of protected species surveys, including Great Crested Newt, reptile, bat and Water Vole.

### **2.6 Constraints of Methodology**

The period during which frass volcanoes are present is limited to a certain time of year when the larvae has entered the plant and is feeding from it, but hasn't moved down to the taproot

yet, which is usually around September. The frass can be washed away in rain and therefore a recorded negative could be a false negative.

### **3. RESULTS**

In total, approximately 296 Hogs Fennel plants were located along the landward side of the sea wall of the surveyed site.

There were two areas of Hogs Fennel, one along the northern sea wall and another along the southern seawall. The highest concentration was along the northern sea wall section. Of these plants, 114 were confirmed to have frass volcanoes, while 118 had no evidence and approximately 64 were inaccessible due to bramble scrub and could not be surveyed.

See Map 1 and 2 for distribution of plants and percentage with frass volcanoes.



## **4. DISCUSSION**

### **4.1 Legal Status**

#### **4.1.1 European Protected Species**

The Fisher's Estuarine Moth is one of only three European protected invertebrate species in the UK. It is against the law to:

- damage or destroy a breeding or resting place (even accidentally);
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care);
- possess, sell, control or transport live or dead protected invertebrates, or parts of them.

#### **4.1.1 Schedule 5 Species**

The Fisher's Estuarine Moth is one of 69 invertebrate species currently designated as Schedule 5 species under the Wildlife and Countryside Act 1981 (as amended). It is an offence to:

- kill, injure or take a wild animal;
- damage, destroy or obstruct access to any structure or place which such an animal uses for shelter or protection;
- disturb such an animal when it is occupying a structure or place for shelter or protection;
- possess or control a living or dead Schedule 5 invertebrate;
- sell, offer for sale, or possess or transport for the purpose of sale any living or dead Schedule 5 invertebrate (or any such derivatives).

### **4.2 Site Conservation Status**

The seawall that borders most of the edge of the site is protected by the designations Hamford Water SAC because of the presence of the Fisher's Estuarine Moth and Hamford Water SSSI for Hogs Fennel.

### **4.3 Population Assessment**

The total national population of the Fisher's Estuarine Moth is estimated at 1,000 – 5,000 adults (C. Gibson, 2000), though it is likely to be higher now that conservation efforts have

increased within the area. However, they are so localised to small areas of coastline in Essex that the value of any site population will be of at least 'national' level.

#### **4.4 Recommendations**

Due to the presence of larval feeding signs, a Natural England mitigation licence will have to be secured in order to allow for the loss of habitat.

Mitigation will include recreating the habitat along the sea wall and on higher ground. Translocation of existing Hogs Fennel and planting of new plants along the counter wall will be required and should take place before the existing seawall is breached to allow for proper establishment.

Map 1. Hogs Fennel  
north sea wall section  
location map

Plant numbers

- Individual plants
- 11-50
- 2-10
- 51-100
- Boundary

% refers to the percentage of plants with Fisher's Fst larvae moth larval feeding signs from the survey

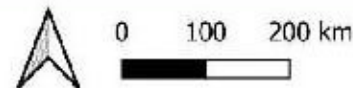
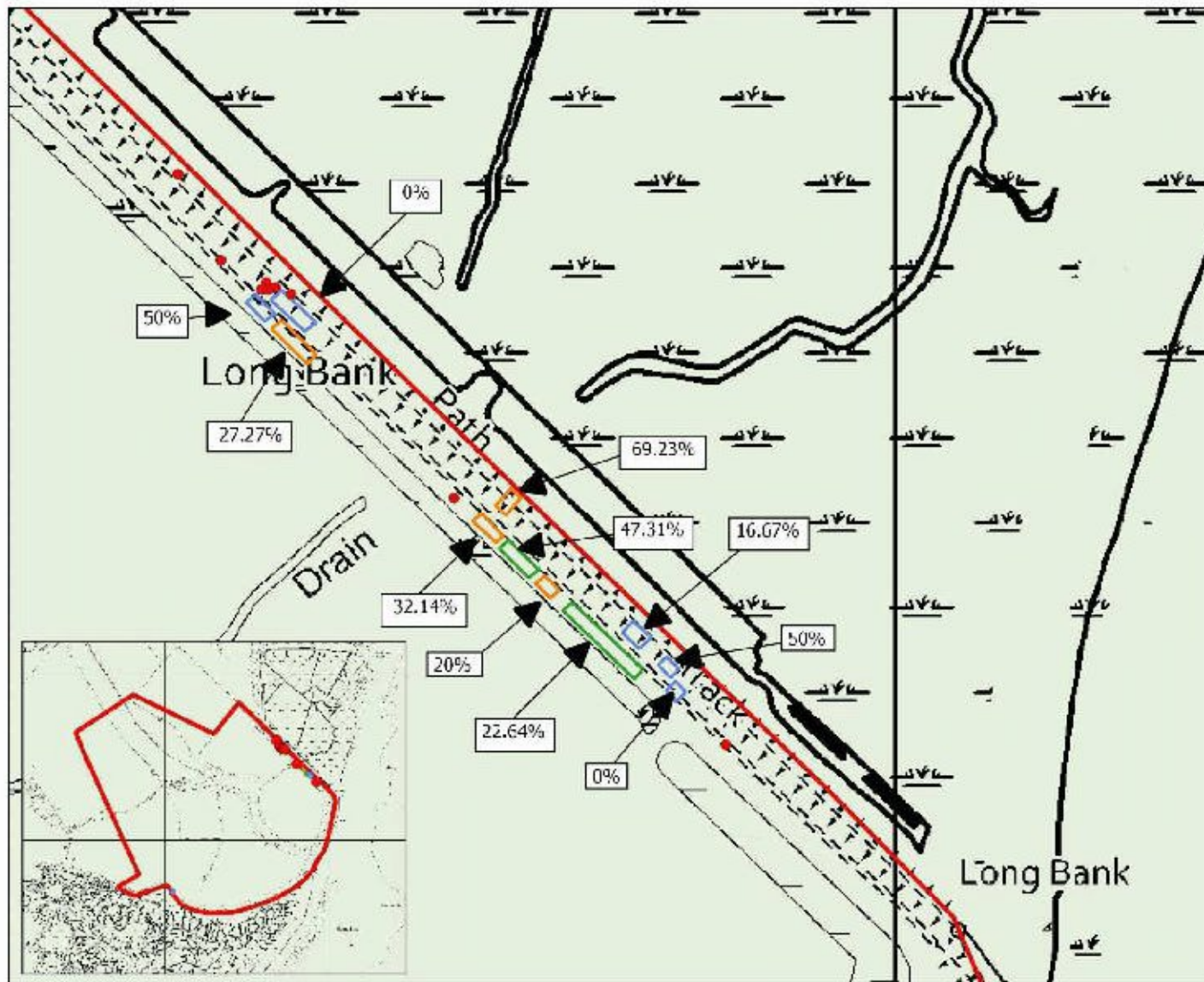


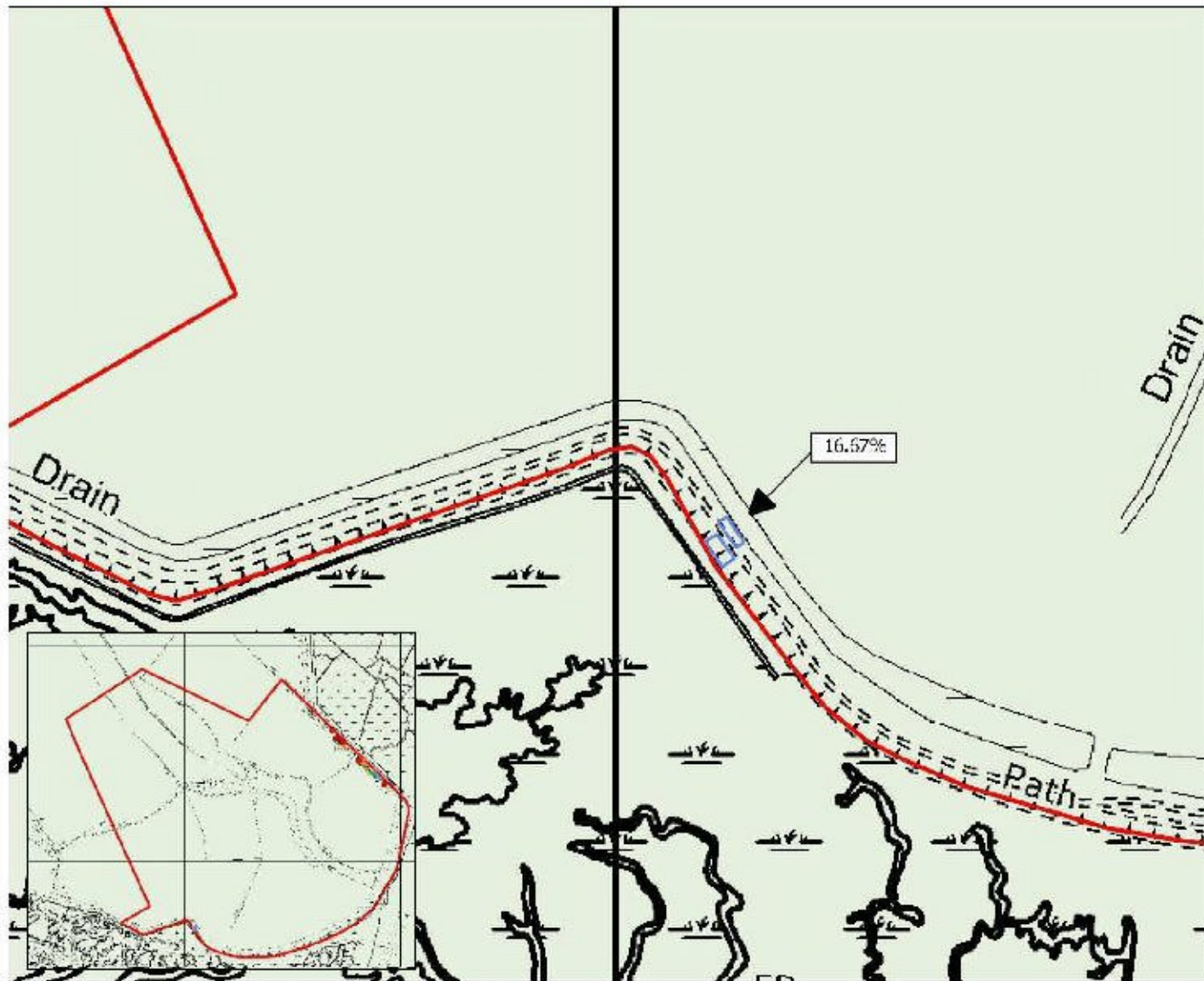
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Map 2. Hogs Fennel  
south sea wall section  
location map

Plant numbers

- Individual plants
- 11-50
- 2-10
- 51-100
- Boundary

% refers to the percentage of plants with Fishers Estuarine moth larval feeding signs from the survey



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**Appendix 1: Photographs**



**A frass volcano at the base of a Hog's Fennel plant at the site.**



**LITTLE OAKLEY  
MANAGED REALIGNMENT**

**PRELIMINARY ECOLOGICAL  
APPRAISAL**

*August 2021*

Prepared by Essex Ecology Services Ltd.  
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**ESSEX ECOLOGY SERVICES Ltd.  
EECOS**

Title of Report	Little Oakley Managed Realignment Preliminary Ecological Appraisal
Client	Hutchison Port Holdings Ltd
Client Representative	Matthew Simpson, Technical Director, Environment Royal Haskoning DHV UK Ltd
Survey Completed By	Charlotte Smith BSc QCIEEM, Assistant Ecologist
Author	Charlotte Smith BSc QCIEEM, Assistant Ecologist
Approved By	Pat Hatch MCIEEM, Principal Ecologist
Report Status	Final
Date of Issue	6 <sup>th</sup> August 2021

This report has been compiled in accordance with BS 42020:2013 Biodiversity Code of practice for planning and development, as has the survey work to which it relates.

The information, advice and opinions provided here have been prepared in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the views expressed are our true and professional *bona fide* opinions.

The impact assessment and recommendations set out in this report are based on professional experience and available guidelines. While there is some interpretation of current legislation on this basis, it should be noted that the authors do not have legal training. In the case of any uncertainty, it is recommended that a specialist environmental lawyer be consulted.

The contents of this report should not be taken to indicate support of any planning application or subsequent development, on the part of EECOS or its parent company, Essex Wildlife Trust. Essex Wildlife Trust reserves the right to object to, or comment upon, any planning application that may arise on this site should any unacceptable wildlife impacts remain unresolved or should any relevant planning policies be compromised.

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**Map 3** Proposed Habitat Creation

**Appendix 1** Plant species list

**Appendix 2** - Photographs

**LITTLE OAKLEY MANAGED REALIGNMENT**  
**PRELIMINARY ECOLOGICAL APPRAISAL**

**1. EXECUTIVE SUMMARY**

- 1.1 This report has been prepared by Essex Ecology Services Ltd. (EECOS), the ecological consultancy of Essex Wildlife Trust, for Hutchison Port Holdings Limited. It comprises the results of a preliminary survey to investigate the potential impacts on wildlife that would result from a habitat creation scheme at Little Oakley, Harwich, Essex. The scheme is to be carried out as compensation for a consented port development at Bathside Bay, Harwich.
- 1.2 A Preliminary Ecological Appraisal was carried out during site visits on 8<sup>th</sup> June and 22<sup>nd</sup> June 2021, during which the site was assessed in terms of its vegetation and habitats and its suitability for use by legally protected and otherwise notable species.
- 1.3 The impact assessment and recommendations set out below are based on professional experience and available guidelines. While there is some interpretation of current legislation on this basis, it should be noted that the authors do not have legal training. In the case of any uncertainty, it is recommended that a specialist environmental lawyer be consulted.
- 1.4 Parts of the surveyed area are covered by a number of national and international nature conservation designations (SSSI, Ramsar site, Special Protection Area, Special Areas of Conservation), primarily due to the importance of adjacent saltmarsh and the presence of Hog's Fennel and Fisher's Estuarine moth in the area.
- 1.5 The surveyed site largely comprises arable farmland, hedges and ditches, covering an area of approximately 139 hectares, with a perimeter seawall along the southern and eastern boundaries with an associated borrowdyke. There is a central wooded area with two ponds.
- 1.6 Hog's Fennel growing on the seawall will have to be translocated to the planned counter wall, in tandem with seeding of the counter wall to maximise success.
- 1.7 Great Crested Newts are not a consideration for the proposed scheme of works due to a lack of suitable breeding habitat. The site's ditches and borrowdykes are brackish and the two site ponds were either dry or almost dry at the time of the survey.
- 1.8 Several oak trees within the northern half of the site have bat roost potential and the wider site provides suitable foraging and commuting habitat. Therefore, further surveys for bats and their roosts are recommended.

- 1.9 Borrowdykes and ditches are likely to support a population of Water Voles. Field signs were found during the survey along the western borrowdyke. Therefore, a full Water Vole survey is required. Due to large-scale habitat loss, translocation of Water Voles to a suitable receptor site will be required once the population size is established.
- 1.10 Grass ditch banks, seawall and field margins provide suitable habitat for reptiles. Therefore, a full reptile survey should be carried out, comprising a minimum of 12 visits carried out during March to September. If reptiles are found to be present, mitigation measures will be required in order to minimise the risk of harming reptiles. This is likely to involve translocation to a suitable receptor site.
- 1.11 The scheme of works will negatively impact breeding birds due to large-scale loss of nesting habitat and has the potential to affect wintering birds if present. Therefore, both breeding and wintering bird surveys are required to further assess potential impacts.
- 1.12 The site has the potential to support Badgers and a previous survey recorded a Badger sett here. Therefore, further survey is required, including monitoring of the sett location and a bait-marking survey in the event that the sett is found to be in use.
- 1.13 The site is likely to support Fisher's Estuarine Moth (a legally protected species) due to the presence of its food plant, Hog's Fennel. A survey should be carried out to check for the presence of this species.
- 1.14 An invertebrate survey of ditches and borrowdykes should be undertaken due to large-scale habitat loss.
- 1.15 The site supports Brown Hare, a Species of Principal Importance in England (SPIE) and possibly Hedgehogs. Hare monitoring is recommended to establish the size of the population. Precautionary measures are recommended during the works for both species.
- 1.16 The advice given in this report is valid for 24 months. If, after this time, the proposed work has not been undertaken, the plans have been altered, or there has been an obvious change in the ecological condition of the site, the advice of an ecologist should be sought as to the possible need for a new survey prior to submitting a planning application or implementing the scheme.

## **2. INTRODUCTION**

### **2.1 General Introduction**

This report has been prepared by Essex Ecology Services Ltd. (EECOS), the ecological consultancy of Essex Wildlife Trust, for Hutchison Port Holdings Ltd. It comprises the results of a preliminary survey to investigate the potential impacts on wildlife that would result from a habitat creation scheme at Little Oakley, Essex. The scheme is to be carried out as compensation for a consented port development at Bathside Bay, Harwich.

### **2.2 Location and Description of Site**

The surveyed site consists of agricultural fields, a sea wall and ditch networks and is located approximately 1.5 kilometres south of Harwich and 1.3 kilometres south east of Little Oakley, Essex at OS grid reference TM234280. The surrounding landscape consists of arable land, with Hamford Water National Nature Reserve to the south and the North Sea to the east.

The site covers approximately 139 hectares in extent.

### **2.3 Outline of Proposed Works**

The proposed works involve a breach of the sea wall at the location of a previously existing creek, creation of inter-tidal mudflats and saltmarsh and the construction of a new seawall as a counter wall along the northern boundary. The scheme is intended to provide compensation habitat for a consented port development at Bathside Bay, Harwich.

### **2.4 Objectives of Survey**

#### **2.4.1 Overview**

The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity. Government Circular 06/2005 'Biodiversity and Geological Conservation Statutory obligations and their impact within the planning system' (which is still live following the publication of the NPPF) states in paragraph 99: "It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision."

The Natural Environment and Rural Communities Act 2006 (NERC Act) imposes an obligation on all public bodies, including local authorities, to have regard to the conservation of biodiversity, particularly of those species and habitats identified as being of principal importance. Section 41 of the Act requires a list to be published that identifies such species and habitats, and for England these are referred to as Species and Habitats of Principal Importance in England (hereafter referred to in this report as SPIE and HPIE). The presence of these species and habitats is material to the determination of planning applications.

#### 2.4.2 Objectives

The aim of the survey was to determine how the proposed work might impact on wildlife or habitats that are of significance in a local, regional or national context. This primarily involved the consideration of species that have legal protection, but also included an assessment of any other noteworthy species and communities, as well as the type and quality of the habitats.

A secondary aim was to identify any constraints or considerations placed upon the development of the site as the result of the flora or fauna present, which includes the presence of “noxious weeds”, or alien species that are subject to specific control measures and restrictions.

### 2.5 Survey Methodology

#### 2.5.1 Desk Study

Before the site visit, a data request was made to Essex Field Club for significant species records within one kilometre of the surveyed site. The data search report is not attached in full as a separate annex to this report, as required by their terms and conditions, for practical reasons associated with its size, but is available on request. Data from statutory designations, such as Sites of Scientific Interest and Special Protection Areas, have been gained from the government website, [www.magic.gov.uk](http://www.magic.gov.uk).

#### 2.5.2 Field Survey

A site visit was made on 8<sup>th</sup> June and 22<sup>nd</sup> June by EECOS Assistant Ecologist Charlotte Smith. Habitats were mapped in line with the UK Habitat Classification methodology (UK Habitat Classification Working Group, 2018).

The site was surveyed for signs of legally protected or otherwise noteworthy species and habitats, such as those of Principal Importance in England (priority species and habitats included on the “Section 41 list” as required by the Natural Environment and Rural Communities Act 2006) and Red Data Lists. All habitats were assessed for their suitability to support legally protected and other noteworthy species.

Where access was possible, the search extended beyond the boundary of the site, as populations of some species (*e.g.*, Badgers) living beyond the immediate boundary of the property could still be affected by activities upon it.

Specific searches and assessments were made as follows (detailed survey methodologies are given in the respective report chapters).

<b>Species/Habitat</b>	<b>Included in assessment (Y/N)?</b>
Hedgerows – assessment using Hedgerow Regulations 1997 criteria.	Yes
Great Crested Newts – identification and assessment of any suitable breeding ponds using Habitat Suitability Index (HSI, see below), terrestrial habitat and potential hibernation sites.	Yes
Bats – identification of potential roost sites and searches for evidence of activity; assessment of foraging habitat and commuting routes.	Yes
Dormice – assessment of suitable habitat.	No suitable habitat
Otters – search for holts, spraints and footprints.	No suitable habitat
Water Voles – assessment of habitat suitability, search for and mapping of burrows, latrines, footprints, pathways and feeding stations.	Yes
Reptiles – assessment of suitable habitat and potential hibernation sites.	Yes
White-clawed Crayfish – assessment of habitat, search for live animals, remains and burrows.	No suitable habitat
Birds – assessment of nesting habitat and likelihood of presence of species listed in Schedule 1 of the Wildlife and Countryside Act 1981, species identified as a Bird of Conservation Concern (Eaton <i>et al.</i> 2015) or significant assemblages.	Yes

Species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) where appropriate, identification and mapping of such species.	None present
Badgers search for and mapping of setts, pathways, footprints, holes, latrines, hairs.	Yes
Invertebrates assessment of habitat.	Yes
Species of Principal Importance in England assessment of habitat, general recording and searching for field signs.	Yes

Where a species or habitat has been identified for assessment, subsequent chapters in this report deal with each one in turn, expanding upon specific assessment methods or evaluation techniques, the results of the assessment, the legal implications and/or nature conservation obligations of the results and recommendations.

Botanical nomenclature follows Stace (2019).

## 2.6 **Impact Assessments**

The impact assessments and any subsequent recommendations given below are made on the assumption that the plans and proposals made available during the preparation of this report remain unchanged and, unless specified, are subject to the successful resolution of any planning application. Where further survey work is recommended that could be material to the planning application, it should be completed and the results made available to the Local Planning Authority prior to any planning decision being made.

Where it was possible to do so, potential impacts are identified and assessed in accordance with the Institute of Ecology and Environmental Management's *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006), with particular reference to the geographic frame of reference that it contains. This suggests valuing ecological resources in the following context: International, UK, National (England), Regional, County, District, Local/Parish and Site.



The scale and significance of each potential impact is then assessed using published guidance, which varies from species to species, and the risk of potential impacts occurring (without mitigation) is quantified in accordance with the IEEM guidelines, using either 'certain' (95% probability or higher), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or extremely unlikely (less than 5%).

A combination of these factors can then be used as a guide to determining appropriate mitigation. As stated in IEEM (2006), section 4.4, "the assessment of impacts should be undertaken in relation to the baseline conditions... that are expected to occur if the development were to not take place". As such, a Preliminary Ecological Appraisal such as this is essential in gauging both the current condition of the site, as well as the scale and severity of any impacts that changes to the site would bring about.

## **2.7 Competence**

Charlotte Smith has been with the company since September 2020 after previously working with EECOS as an intern. She has completed a BSc in Zoology and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She has undertaken numerous ecological site appraisals, habitat assessments and a wide range of protected species surveys, including Great Crested Newt, reptile, bat and Water Vole surveys.

## **2.8 Constraints of Methodology**

This survey was designed to provide a preliminary assessment of the site's wildlife value. Observations were made on and around the site to establish the potential of the habitats to support legally protected and other noteworthy species. Although presence or absence has been determined where possible, for some species, specific survey techniques or levels of survey effort are needed. Where appropriate, additional survey work is recommended.

The wildlife and habitats present on any site are subject to change over time. All single-visit surveys of this kind can only record the situation as it is at the time, rather than providing a comprehensive analysis of the site's ecology. Therefore, significant delays to the implementation of the scheme may require a re-evaluation of ecological issues prior to commencement.

The survey was limited to ecological issues and so did not consider aspects such as archaeology, landscape, arboriculture or Tree Preservation Orders.

### **3. DESIGNATED SITES**

#### **3.1 Survey Site**

The seawall and borrowdykes within the surveyed area fall within the following sites designated for their ecological value (see Map 3):

- Hamford Water Special Area of Conservation (SAC).
- Hamford Water Ramsar site.
- Hamford Water Site of Special Scientific Interest (SSSI).
- Hamford Water Special Protection Area (SPA).

##### **3.1.1 Hamford Water SAC**

Hamford Water SAC is primarily designated for the legally protected Fisher's Estuarine Moth (*Gortyna borelii*). Hamford Water supports the majority of the Essex population and is the most important UK site for this species, supporting approximately 70% of the national population. The site encompasses those areas where the moth's food plant, Hog's Fennel (*Peucedanum officinale*), grows and where there is an abundance of the grasses required by the species for egg laying. The SAC includes the seawall of the south western end of the surveyed site, where the site's Hog's Fennel is located.

##### **3.1.2 Hamford Water SPA**

This site is of importance for internationally significant populations of breeding Little Tern and wintering Avocet, which are listed on Annex 1 of the Wildlife and Countryside Act, as well as other overwintering and migratory birds.

##### **3.1.3 Hamford Water Ramsar Site**

Hamford Water is classified as a wetland of international importance under the Ramsar Convention, being a large, shallow estuarine basin comprising tidal creeks and islands, intertidal mud, sand flats and saltmarsh supporting rare plants and internationally important species/populations of migratory waterfowl. This includes species such as Dark-bellied Brent Goose and Ringed Plover.

##### **3.1.4 Hamford Water SSSI**

This SSSI is designated for its vascular plant assemblage, in particular Hog's Fennel.

### **3.2 Site Context**

The site is bordered by Hamford Water National Nature Reserve along its eastern and southern boundary, adjacent to the sea wall.

Living Landscapes is a national initiative being promoted by The Wildlife Trusts, embracing characteristic landscapes and the wildlife they support. An important consideration for these areas is that they are also beneficial to local people and communities and foster a flourishing local economy. This embraces the idea that people should be encouraged to live in, work in and enjoy their local environment harmoniously. The site lies within Living Landscape Little Oakley and Hamford Water Area. Any measures enhancing the site for wildlife would contribute to this landscape along the coastline within a wider landscape dominated by arable farmland and saltmarsh.

## **4. HABITATS**

### **4.1 Legal Status**

No habitat type receives blanket legal protection in itself. However, government guidance requires that habitats classified as Habitats of Principal Importance in England (HPIE) are taken into account as part of the development control process (see section 2.4.1).

### **4.2 Assessment Methodology**

The site was walked, with plant species lists compiled for the vegetation types present. In doing so, judgements were made as to whether or not any of the vegetation present comprised habitat types of particular significance, including HPIE. Habitats were categorised according to the UK Habitat Classification system.

### **4.3 Habitat Descriptions**

Map 1 illustrates the habitats present within the surveyed area and Appendix 2 includes photographs of the main habitats.

The majority of the site is arable farmland. Along the southern and eastern boundary is a seawall covered in rough neutral grassland, dominated by grasses such as False Oat-grass and Cock's-foot. Along the south western sea wall, landward side, are some patches of Hog's Fennel and Sea Clover, both Nationally Scarce species. Other species present include Salsify, Creeping Thistle, Wild Carrot, Cow Parsley and Narrow-leaved Ragwort.

Adjacent to the seawall are borrowdykes (ditch 4 on Map 1), which are dominated by Common Reed, with patches of Bramble, Blackthorn and Dog Rose scrub along the banks. The borrowdykes have a grass buffer strip between them and the arable fields. This strip is dominated by False Oat-grass, with some Barren Brome and numerous herbs including Cut-leaved Cranesbill, Cow Parsley, Hogweed and Bristly Oxtongue.

Within the site there are a few drainage ditches (ditches 1 – 3 on Map 1), mainly dominated by Sea Club-rush with occasional Bramble scrub along the banks. They are bordered by a rough grass buffer, made up of species such as False Oat-grass, Cock's-foot, Yorkshire Fog and Sea Couch.

The banks of ditch 1 are densely covered in Blackthorn and Bramble scrub with some False Fox Sedge and the occasional oak sapling, with a similar grass margin to the other ditches.

A central raised area is covered in trees and dense scrub, mainly Blackthorn and Hawthorn with some willow and the occasional conifer. On the perimeter of the area and the banks, there is a dense cover of Hemlock amongst the False Oat-grass dominated grassland.

Within this raised area is a possible dried out pond which has young Common Reed but with no standing water. On its northern bank is a line of Sycamores. To the east of this feature is a dense area of Blackthorn scrub, with an open pond adjacent to it. This pond has very little standing water and has some Sea Club-rush amongst the bare mud with some Creeping Bent around the edge.

Separated by a gravel track, to the east of the raised area is a small area of young trees consisting of Sycamore, Blackthorn, Ash, Oak, Elder and Alder. Underneath the trees there is grassland dominated by Cock's-foot with Sweet Vernal Grass, Barren Brome, Common Nettle and Cow Parsley.

There is a main gravel track that cuts through the middle of the site towards the sea wall. Either side of it is an approximately 3 metre grass margin dominated by Cock's-foot and, near the seawall end, some Cord Grass and Alexanders. Herbaceous plants within the grassland include Common Mallow, Hogweed, White Clover, Buck's-horn Plantain, Sea Beet, and Black Medick. The occasional tree sapling is present, mainly Sycamore and willow with some young Hawthorn. Along the northern edge of the track is a drainage ditch, ditch 3, with some standing water but mainly dry. The ditch has reed growing throughout, with Bramble and Blackthorn scrub along the banks.

The hedgerows that lie adjacent to the northern tracks and ditches are mainly Hawthorn and Blackthorn, with some Oaks within. Hedgerow 4 is more heavily managed, whereas the remainder of the hedges 1 – 3 are mature and tall.

#### **4.4 Habitat Assessment**

##### **4.4.1 Survey Site**

The following Habitats of Principal Importance in England (HPIE) are found at the site:

- Hedgerows
- Reedbeds

The site has a network of connecting hedgerows, most of which are of good condition, being mixed native species and mature. The hedgerow 4 along the north eastern end of the site is more heavily managed, having recently been flailed at the time of this survey.

The borrowdykes are mainly dominated by reeds and there is a dried out stand of reeds in the dry pond area.

There are two ponds in the central area, but these do not currently qualify as HPIE. One was dry at the time of this survey and one of had some shallow standing water but was mainly dry.

#### **4.5 Impact Assessment**

##### **4.5.1 Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table:

<b>Habitat Affected</b>	<b>Impact</b>	<b>Scale of Impact</b>	<b>Likelihood of occurrence in the absence of mitigation</b>
Hedgerows	Saltwater flooding	Major adverse at site level	Certain
Reedbed	Saltwater flooding	Major adverse at site level	Certain

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

The works include the breaching of the seawall, which will lead to the site being flooded by saltwater. This will change the salinity of the area and result in the loss of these habitats.

#### 4.5.2 Zone of Influence

We do not anticipate any significant impacts for the proposed habitat creation scheme upon habitats beyond the boundaries of the surveyed site.

#### 4.6 Recommendations

An assessment should be undertaken to assess the value of the site's hedgerows under the ecological criteria of the Hedgerow Regulations 1997.



## 5. FLORA

### 5.1 Legal Status

This chapter considers individual plant species, which might be of significance because they are rare (some few of which receive legal protection), or because they are troublesome agricultural pest species. Some non-native species have legal controls aimed at preventing their further spread in the countryside.

#### 5.1.1 Schedule 8 Plants

Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) lists those plants receiving special protection against picking, uprooting or destruction.

#### 5.1.2 Schedule 9 Plants

The Wildlife and Countryside Act 1981 (as amended) makes it an offence, amongst other things, to plant or otherwise cause to grow in the wild any plant that is included in Part II of Schedule 9. There is a defence available if it can be proven that all reasonable steps were taken to avoid the offence and due diligence was exercised.

#### 5.1.3 Notifiable Weeds

The Weeds Act 1959 lists five species often termed “notifiable weeds”, for which the landowner can be legally obliged to undertake control measures. They are Common Ragwort (*Senecio jacobaea*), Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*), Curled Dock (*Rumex crispus*) and Broad-leaved Dock (*Rumex obtusifolius*).

Common Ragwort is also covered by a government Code of Practice given legal status by the Ragwort Control Act 2003: “Code of Practice on How to Prevent the Spread of Ragwort”. The Code requires action to prevent its spread where it presents a high risk to land used for grazing or forage production. Guidance on what constitutes high risk is as follows: “Ragwort is present and flowering/seeding within 50m of land used for grazing by horses and other animals or land used for feed/forage production”. It is the responsibility of the landowner to assess the risk and take appropriate action.

## 5.2 **Data Search Results**

There are numerous records of Hog's Fennel at and within one kilometre of the site. This species is the larval foodplant for Fisher's Estuarine moth, which is legally protected under the Habitats Regulations. There are multiple records of the Nationally Scarce Golden Samphire and Sea Clover and the Near Threatened Parsley Water-dropwort and Spiny Restharrow.

## 5.3 **Assessment Methodology**

The flora of the site was assessed whilst undertaking the habitat assessment described above.

## 5.4 **Assessment Results**

See Appendix 1 for a full plant species list.

The Nationally Rare Hog's Fennel and Nationally Scarce Sea Clover were both found to be present along the landward side of the south western section of seawall.

## 5.5 **Impact Assessment**

### 5.5.1 **Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table.

<b>Species</b>	<b>Impact/implication</b>	<b>Scale of Impact</b>	<b>Likelihood of occurrence in the absence of mitigation</b>
Hog's Fennel	Destruction	Major adverse at national level	Probable
Sea Clover	Destruction	Moderate adverse at national level	Probable

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

As part of the proposed habitat creation scheme, the site will be inundated with salt water and areas of seawall that are retained, including the area containing Hog's Fennel and Sea Clover, are likely to be subjected to tidal inundation, which is likely to result in the loss of these plants, at least from the lower parts of the seawall.

### 5.5.2 Zone of Influence

We do not anticipate any significant impacts for the proposed development upon notable flora beyond the boundaries of the surveyed site.

### 5.6 Recommendations

The translocation of all Hog's Fennel plants found onsite is recommended, alongside seeding of Hog's Fennel along the proposed counter wall at the northern boundary of the site. This will allow for re-establishment of the plants and to keep the important habitat for the protected Fisher's Estuarine Moth, which relies on Hog's Fennel as it's larval food plant.

## **6. GREAT CRESTED NEWTS**

### **6.1 Legal Status**

Great Crested Newts are fully protected by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). This makes it an offence, amongst other things:

- to deliberately capture, kill or injure Great Crested Newts;
- to damage or destroy a breeding site or resting place used by Great Crested Newts;
- to deliberately disturb Great Crested Newts in a way that is likely to impair their ability to migrate, hibernate, survive or reproduce, or in a way that is likely to affect significantly their local distribution or abundance;
- to intentionally or recklessly disturb Great Crested Newts while they are occupying a place of shelter or protection, or attempt to do so;
- to intentionally or recklessly obstruct access to any place of shelter or protection, or attempt to do so.

Any work that would otherwise result in one of these criminal offences must be carried out under a licence issued by Natural England. Guidelines produced by English Nature (which is now Natural England) state that any development work within 500 metres of a breeding pond should be carried out under a licence from Natural England, if it is likely that the population in the pond will be affected.

Damage to or destruction of breeding sites and resting places is an absolute offence and so there is no defence available within the law, even if the persons involved were not aware of a habitat's use by these animals. Courts will have regard to whether or not the impact could have been reasonably avoided in deciding upon a sentence. In all cases the risk of an offence occurring can be minimised by taking all reasonable precautions, as set out in available guidance.

Great Crested Newt is also a Species of Principal Importance in England.

## **6.2 Data Search Results**

There are no records of Great Crested Newts within one kilometre of the site, although this may reflect a lack of local surveying and recording for this species.

Great Crested Newt surveys were undertaken on all water bodies at the site to inform a previous planning application relating to the proposed habitat creation scheme, but no newts were found to be present. This is likely to be due to the fact that the surveyed borrowdykes and ditches hold brackish water.

## **6.3 Assessment Methodology**

The surveyed site was assessed for its suitability as terrestrial habitat for Great Crested Newts. This included the site's vegetation and any other features, including artificial features, that may be used by sheltering or foraging newts, such as compost heaps, garden waste, spoil heaps and cracks in the ground.

A search of the site was made for ponds and other water bodies that may provide potential breeding habitat for Great Crested Newts. Maps and aerial photographs were consulted for ponds and other water bodies within 500 metres of the surveyed site. Any such water bodies at the site, or sufficiently linked to the site that newts may move between them, were assessed for their suitability as newt breeding habitat using the Great Crested Newt Habitat Suitability Index (HSI) (ARG UK, 2010). The HSI combines indices describing ten factors believed to influence Great Crested Newts into a single value between zero and one, zero indicating completely unsuitable habitat and one representing optimal habitat. Although this is not a substitute for an amphibian survey, it does allow for a judgement of likelihood in relation to the presence of Great Crested Newts.

## **6.4 Assessment Results**

There is one wet pond at the site, but it was almost dry at the time of this survey, with just a small area of shallow standing water. This feature is currently considered unsuitable for use as a breeding site by this species due to a lack of deeper water. There are a few waterbodies, mainly agricultural reservoirs, within 500 metres of the site, but these are separated from the site by large agricultural fields.

All onsite ditches are likely to be brackish, as indicated by the presence of Sea Club-rush. Therefore, the presence of breeding Great Crested Newts here is considered unlikely.

Potential terrestrial newt habitat is present in the form of rough grassland. However, the lack of suitable breeding habitat at and in the vicinity of the site means that Great Crested Newts are considered unlikely to occur at the site.

For these reasons, Great Crested Newts and their habitat are not a material concern for the project.

## **7. BATS**

### **7.1 Legal Status**

Under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended) all species of bats receive full protection such that it is an offence, amongst other things:

- to deliberately capture, kill or injure any bat;
- to damage or destroy a breeding site or resting place used by bats (whether bats are in it at the time or not);
- to deliberately disturb bats in a way that is likely to impair their ability to migrate, hibernate, survive or reproduce, or in a way that is likely to affect significantly their local distribution or abundance;
- to intentionally or recklessly disturb bats while occupying a place of shelter or protection, or attempt to do so;
- to intentionally or recklessly obstruct access to any place of shelter or protection, or attempt to do so.

Any work that would otherwise result in one or more of these criminal offences must be carried out under a Natural England licence.

Damage to or destruction of breeding sites and resting places is an absolute offence and so there is no defence available within the law, even if the persons involved were not aware of a habitat's use by these animals. Courts will have regard to whether or not the impact could have been reasonably avoided in deciding upon a sentence. In all cases the risk of an offence occurring can be minimised by taking all reasonable precautions, as set out in available guidance.

The following bat species are those Species of Principal Importance in England that occur regularly in Essex: Barbastelle, Noctule, Soprano Pipistrelle and Brown Long-eared Bat.

### **7.2 Data Search Results**

There are no records of bats within one kilometre of the site, although this is likely to reflect a lack of local surveying and recording for these species.

### **7.3 Assessment Methodology**

All trees at the site were assessed for their potential to support roosting bats, by looking for features typically used, such as cavities, old woodpecker holes, loose bark, splits and cracks. Collins (2016) includes a system for categorising trees and other structures based upon their potential to support roosting bats:

- Negligible: negligible habitat features on site likely to be used by roosting bats
- Low: structures with some potential for use by single bats, although not necessarily on a regular basis
- Moderate: a structure with one or more potential roost sites in more regular use, but unlikely to support a roost of high conservation status
- High: a structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time, including maternity roosts.

The site was also assessed for its suitability as foraging habitat and for the presence of linear features that could form commuting routes.

### **7.4 Assessment Results**

#### **7.4.1 Bat Roost Potential**

The area of highest potential is along hedgerow 2 (see Map 1), where there are several mature Oak trees with a moderate level of bat roost potential.

#### **7.4.2 Other Site Usage**

The site has moderate potential to be used for foraging and commuting, with activity likely to be concentrated along the hedgerows, borrowdykes and ditches and around the wooded central area.

### **7.5 Population Assessment**

The ecological value of any local bat population which make use of the site would depend upon which species are present. A local population of either Common Pipistrelle or Soprano Pipistrelle would be of value at a 'local' level, being common and widespread species, whereas populations of less common species would have a higher value.



## 7.6 **Impact Assessment**

### 7.6.1 **Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table:

Type of Impact (from Mitchell-Jones, 2004)	Scale of Impact	Likelihood of occurrence in the absence of mitigation
Killing and injury of bats	Major negative at site to local level	Unlikely
Destruction of bat roosts	Major negative at site to local level	Probable
Loss of foraging habitat	Major negative at site level	Certain

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

The habitat creation proposals involve the breaching of the sea wall, which will change the onsite habitats from open agricultural land to tidal areas and saltmarsh. This could provide more habitat for bats to forage in the form of new shoreline, but will inevitably involve the loss of existing habitat of likely value to foraging bats, such as hedgerows and borrowdykes.

### 7.6.2 **Zone of Influence**

We do not anticipate any significant impacts for the proposed development upon bats and their roosts beyond the boundaries of the surveyed site.

## 7.7 **Recommendations**

Due to the moderate suitability of the site, an activity survey is recommended to assess its use by foraging and commuting bats. This should take the form of two survey visits per month in appropriate weather conditions from April to October. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. Static detectors should also be used, located at two places per transect, with data to be collected on five consecutive nights per month in appropriate weather conditions from April to October.

The mature oak trees within the hedgerows 2 and 3 should be surveyed for bat roosts, consisting of at least two nocturnal surveys during the period May – September.

## **8. WATER VOLES**

### **8.1 Legal Status**

By virtue of their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), it is an offence, amongst other things:

- to intentionally kill, injure or take Water Voles;
- to intentionally or recklessly damage, destroy or obstruct access to places used by Water Voles for shelter or protection (*i.e.* their burrows);
- to intentionally or recklessly disturb Water Voles while occupying a place of shelter or protection.

Water Vole is also a Species of Principal Importance in England.

### **8.2 Data Search Results**

There are no records of Water Voles within one kilometre of the site, although this may reflect a lack of local surveying and recording for this species.

### **8.3 Assessment Methodology**

The site was assessed for its suitability for Water Voles, concentrating on the borrowdykes and internal ditches. The survey was carried out following methodology outlined in the Water Vole Conservation Handbook. Brief searches were made at various locations along the banks of borrowdykes and ditches for field signs such as burrows, latrines and feeding stations.

### **8.4 Assessment Results**

The site's borrowdykes are considered to be suitable for this species, with permanent standing water and plenty of emergent vegetation in the form of reeds and Sea Club-rush. Water Vole latrines and feeding remains were found along the borrowdyke of the western end of the site.

The internal ditches were generally similar in habitat and vegetation to the borrowdykes, although typically narrower, being mostly dominated by Sea Club-rush instead of reed, but with plenty of emergent vegetation, suitable banks for burrowing and being well connected to the borrowdykes.

## 8.5 **Population Assessment**

The level of value of a site population would depend on its size. A small population is likely to be of site or local value, whilst a large population may be of local or district level importance.

## 8.6 **Impact Assessment**

### 8.6.1 **Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table:

Type of Impact	Scale of Impact	Likelihood of occurrence in the absence of mitigation
Killing of individuals	Major adverse at site level	Probable
Destruction of habitat	Major adverse at local to district level	Certain

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

The breach of the sea wall will mean that the site will be flooded with salt water and restored to saltmarsh and mudflats, which will involve the loss of Water Vole habitat in the form of borrowdykes and ditches.

### 8.6.2 **Zone of Influence**

We do not anticipate any significant impacts for the proposed development upon this species or its habitat beyond the boundaries of the surveyed site.

## 8.7 **Recommendations**

Further Water Vole surveys are recommended to clarify the size of the population and, therefore, the consequences of the habitat creation scheme for the local Water Vole population. Two survey visits should be undertaken, one in the first half of the season (mid-April to the end of June) and one in the second half of the season (July to September inclusive). These visits should be undertaken at least two months apart. These surveys will involve a search of the borrowdykes and ditches for Water Vole field signs.

Translocation of Water Voles is likely to be required. This will involve fencing off areas of suitable habitat, then trapping voles within these areas between 1<sup>st</sup> March and 15<sup>th</sup> April and moving them to a suitable receptor site. This will need to be done under a licence issued by Natural England and in accordance with an approved, detailed Method Statement.

The new seawall to be constructed along the northern edge of the proposed habitat creation area will provide potential Water Vole habitat in the form of new borrowdykes and it is recommended that these features be considered as a potential receptor site for translocated voles. However, other sites may have to be considered as the new borrowdykes will not be suitable to receive translocated animals until the vegetation communities have matured.

## **9. REPTILES**

### **9.1 Legal Status**

All of the UK's native species of reptiles are partially protected by the Wildlife and Countryside Act 1981 (as amended) such that it is an offence to:

- intentionally kill or injure any reptile.

There is no licensing system for reptiles, but there is a defence in the Act that permits otherwise illegal actions if they are the incidental result of a lawful operation and could not reasonably be avoided. For this defence to be used in a court of law it would be necessary to document and carry out a series of precautions and mitigation measures that seek to avoid the offence from being committed.

All reptile species are also Species of Principal Importance in England.

### **9.2 Data Search Results**

There are no records of reptiles within one kilometre of the site, although this may reflect a lack of local surveying and recording for these species.

### **9.3 Assessment Methodology**

The surveyed site was assessed for its suitability as habitat for the reptile species which occur in Essex (i.e., Common Lizard, Slow Worm, Grass Snake and Adder). This included the site's vegetation and any other, including artificial, features which may be used by sheltering or foraging reptiles, such as compost heaps, garden waste, spoil and rubble heaps, cracks in the ground and bare and sparsely vegetated ground.

### **9.4 Assessment Results**

The site has many areas that are suitable for reptiles, mainly along the sea wall, along the grassy buffers of the ditches and along the central grass bund where the grass is tall and tussocky. The site is well connected to the surrounding areas by the seawall, a habitat favoured by reptiles along much of the Essex coast.

Areas that are currently being cultivated for agriculture were considered unsuitable habitat.

## 9.5 **Population Assessment**

The value of a local reptile population would depend on which species is present and its population size. Common Lizard, Slow Worm and Grass Snake may be of 'local' level importance, unless a large population is present, but Adder is likely to be of value at a 'county' level.

## 9.6 **Impact Assessment**

### 9.6.1 **Site Impacts**

If reptiles are present at the surveyed site, the on-site impacts that may result from the proposals, as they are understood at present, would be as follows:

Type of Impact	Scale of Impact	Likelihood of occurrence in the absence of mitigation
Killing or injuring individual reptiles	Moderate adverse at site level	Certain
Loss of terrestrial habitat	Major adverse at site level	Certain

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per HEM, 2006).

The site is well connected to the surrounding habitats by the seawall and grass verges. Although parts of the current seawall will be lost, a new one will be created behind the managed realignment and, once established as rough grassland, this will connect up the suitable reptile habitat either side of the site.

### 9.6.2 **Zone of Influence**

We do not anticipate any significant impacts for the proposed development upon reptiles beyond the boundaries of the surveyed site.

## 9.7 **Recommendations**

It is recommended that a reptile survey be carried out to establish the presence and distribution of reptile species within the site. An appropriate survey methodology involves placing artificial refuges (e.g., squares of roofing felt) around the site and then checking them under suitable weather conditions (i.e., calm, warm days without rain).

The reptile survey should consist of 12 site visits during the period March – September, during which survey refugia are checked for the presence of basking or sheltering reptiles. The survey should be carried out under suitable weather conditions and should take place over a period of at least 30 days.

If reptiles are found, translocation is likely to be required. This is likely to involve using a reptile fence to prevent colonisation into the site before and during works, the capture of reptiles within the site and moving them to a new location. A suitable receptor site will have to be found, ideally close to the site. Depending on the population size and location of reptiles at the site, it may be possible to accommodate them on adjacent or other nearby stretches of seawall and/or other areas of suitable grassland.

## **10. BIRDS**

### **10.1 Legal Status**

The Wildlife and Countryside Act 1981 (as amended) makes it an offence, amongst other things, to:

- Intentionally kill or injure any wild bird;
- Intentionally take damage or destroy the nest of any wild bird included in Schedule 1 (whether or not it is active);
- Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built;
- Intentionally take or destroy the egg of any wild bird;
- Intentionally or recklessly disturb any bird species included in Schedule 1 of the Act while it is building a nest, or is in, on or near any nest containing eggs or young;
- Intentionally or recklessly disturb the dependent young of any bird included in Schedule 1.

Schedule 1 of the Act includes certain rare or threatened species. Licences to permit these offences can only be granted by Natural England for reasons of preserving public health or public safety.

### **10.2 Data Search Results**

Most of the data search records within one kilometre of the site are of waders and waterfowl, which is to be expected as the site sits next to Hamford Water National Nature Reserve, which is nationally and internationally important site for its wintering and migratory birds (see section 3.2 above).

### **10.3 Assessment Methodology**

All species seen during the survey visit were recorded, along with more detailed information about activity, where possible.



#### **10.4 Assessment Results**

During the survey, Lapwing and Skylark (both of which are Species of Principle Importance in England) were recorded on the arable fields close to the seawall, demonstrating breeding behaviour. Skylarks were singing and Lapwing were showing defensive calling when approached. This suggests that they are breeding amongst the arable fields.

The rough grass margins of the ditches, tracks and seawalls are suitable for foraging Barn Owls, another Species of Principal Importance, but no structures were found that could be used for nesting by this species.

Within the ditches and borrowdykes of the site, both Reed and Sedge Warblers were recorded singing, as well as Cetti's Warbler, a Schedule 1 species. A Cuckoo was recorded during the second survey visit.

Common woodland and grassland species such as Great Tit, Wren, Blackbird and Whitethroat were also recorded during the survey. The central wooded section is likely to support common woodland breeding species.

The site was also assessed as having potential for use by wintering and migratory birds, including shore birds for which the various adjacent designated sites (see section 3) are notified. Such species will often move to adjacent farmland from mudflats and saltmarsh during high tide.

#### **10.5 Population Assessment**

Most farmland bird populations will be of 'local' value. However, the presence of some Species of Principal Importance, such as Skylark and Lapwing, is likely to elevate the site value to 'district' level value.

## 10.6 **Impact Assessment**

### 10.6.1 **Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table:

Species	Type of Impact	Scale of Impact	Likelihood of occurrence in the absence of mitigation
Farmland birds/ ground nesting birds	Killing or injuring individual animals	Major adverse at site level	Probable
Farmland birds/ ground nesting birds	Damage or destruction of active nests and/or eggs	Major adverse at site level	Probable
Cetti's warbler	Damage or destruction of Schedule 1 species' nests	Major adverse at site level	Probable
Cetti's warbler	Disturbing Schedule 1 species at the nest site	Major adverse at site level	Probable
Cetti's warbler	Disturbing the young of Schedule 1 species	Major adverse at site level	Probable
Wintering birds	Loss of habitat	Major adverse at site level	Probable

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

Farmland birds, particularly granivorous ones, are likely to be affected due to the loss of winter agricultural fields that provide habitat and food resources.

Nesting and breeding birds may be killed or disturbed while breeding if the works take place in spring and summer.

The project will result in a significant increase in habitat for wintering wildfowl and waders. It will connect up the small northern area of Hamford Water with the larger main area to the south of the site, creating one contiguous, larger area of habitat. However, loafing habitat for shore birds at high tide will be lost.

### 10.6.2 **Zone of Influence**

We do not anticipate any significant negative impacts on birds outside of the boundaries of the site. On the contrary, the creation of significant new wetland habitat and the expected associated increase in use by waterbirds will serve to buffer existing populations within Hamford Water, thereby allowing the populations to expand within the new habitat provided. It will provide more foraging habitat for overwintering and migratory bird species.

## 10.7 **Recommendations**

Full breeding and wintering bird surveys are recommended to assess the site's use by birds. This should include the months from September to June (inclusive) to encompass both the breeding season and the wintering and migration period.

There is no way of avoiding or minimising impacts on ground nesting birds (such as Lapwing and Skylark) due to the inevitable destruction of habitat. However, compensation features can be used to help mitigate the loss of breeding habitat, such as Skylark plots on adjacent land.

Any clearance of trees, shrubs or undergrowth should preferably be carried out between September and the following February, inclusive, to reduce the possibility of damage to birds' nests, although it is possible for some species to nest earlier in the year. Guidance should be sought from a suitably qualified ecologist if there is any reason for doubt. If clearance is planned to take place from March to August, inclusive, it will first be necessary to carry out a survey to determine whether or not there are active nests present. If there are, then the work would have to wait until any young had fledged. If not, the vegetation could be cleared immediately, before any nests could be established, but any further delay would necessitate another survey.

## **11. BADGERS**

### **11.1 Legal Status**

Badgers receive legal protection under the Protection of Badgers Act 1992. This makes it an offence, amongst other things:

- to wilfully kill or injure a Badger, or attempt to do so;
- to intentionally or recklessly damage, destroy or obstruct access to a sett;
- to intentionally or recklessly disturb a Badger when occupying a sett;

unless the action was the incidental result of a lawful operation and could not reasonably have been avoided.

Potentially unlawful activities can be made legal if they are covered by a licence, issued by Natural England.

### **11.2 Data Search Results**

There are no records of Badgers within one kilometre of the site, although this may reflect a lack of local surveying and recording for this species.

We understand that previous surveys of the site located an inactive Badger sett in a central location.

### **11.3 Assessment Methodology**

The site was assessed for its suitability to support Badgers, with reference to foraging habitat and connectivity. A search was made for setts and evidence of activity such as latrines, pathways, footprints, hair caught in fences and foraging marks.

### **11.4 Assessment Results**

During the survey, no setts or evidence of Badgers were found. However, it is possible that setts and field signs could be missed due to the large scale of the site and the time of year, as scrub vegetation was dense and, in places, impenetrable.

## 11.5 **Population Assessment**

The value of a site population would likely be 'local'.

## 11.6 **Impact Assessment**

### 11.6.1 **Site Impacts**

If a Badger sett is shown to be present, the on-site impacts that may result from the proposals, as they are understood at present, are as follows:

Type of Impact	Scale of Impact	Likelihood of occurrence in the absence of mitigation
Killing or injuring individual animals	Major adverse at local level	Probable
Damage, destroy or obstruct access to a sett	Major adverse at local level	Probable
Disturbance of Badgers in a sett	Major adverse at site level	Probable

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

The impacts of the works on Badgers depends on their presence and population. Further surveys will be required (see below).

### 11.6.2 **Zone of Influence**

We do not anticipate any significant impacts on Badgers beyond the site boundaries.

## 11.7 **Recommendations**

An activity survey will be needed to assess the use of the site by Badgers and to establish their population size, if any. The survey method involves searching for setts and field signs during the spring or late autumn, when Badgers are most active.

If a Badger sett is found and is active, and due to the nature of the proposed work changing the habitats entirely, a sett exclusion will have to be carried out under licence. Licences to exclude Badgers and to close down or destroy a sett are only issued for exclusion between 1<sup>st</sup> July and 30<sup>th</sup> November, other than in exceptional circumstances. A nearby sett will have to be found for the Badgers to move to or a new artificial sett will need to be built.

## **12. INVERTEBRATES**

### **12.1 Legal Status**

#### **12.1.1 European Protected Species**

There are three 'European protected' invertebrate species, including Fisher's Estuarine Moth.

It is against the law to:

- damage or destroy a breeding or resting place (even accidentally);
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care);
- possess, sell, control or transport live or dead protected invertebrates, or parts of them.

#### **12.1.2 Schedule 5 Species**

There are 69 invertebrate species currently designated as Schedule 5 species. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to:

- kill, injure or take a wild animal;
- damage, destroy or obstruct access to any structure or place which such an animal uses for shelter or protection;
- disturb such an animal when it is occupying a structure or place for shelter or protection;
- possess or control a living or dead Schedule 5 invertebrate;
- sell, offer for sale, or possess or transport for the purpose of sale any living or dead Schedule 5 invertebrate (or any such derivatives).

#### **12.1.3 Species of Principal Importance in England (SPIE)**

SPIE are listed by the Secretary of State, as required by Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Although the majority of these species (formerly described as UK BAP Priority species) receive no direct legal protection, the NERC Act places an obligation on local authorities to have regard to their conservation. Therefore, the presence of such species can be a material consideration to a planning decision. Hence, if changes to land use or alterations to a site are being proposed, it would be prudent to bear in mind the ecological requirements of these species, so that a mitigation or compensation strategy can be formulated so that there is no significant impact upon the populations of these critical species.

## **12.2 Data Search Results**

There are numerous records of notable invertebrate species within one kilometre of the site, although most are pre-2000. Most relevant is Fisher's Estuarine Moth, with a record from 2011 from a location approximately 200 metres from the surveyed site. There is also one record of the Nationally Notable Carrot Seed Moth (*Sitochroa palealis*) in 2018.

## **12.3 Assessment Methodology**

The site was assessed for its suitability for protected invertebrates, in particular for Fisher's Estuarine Moth.

## **12.4 Assessment Results**

An area of Hog's Fennel was found at the site, along the south western section of the seawall. Hog's Fennel is the larval food plant for the Fisher's Estuarine Moth, a European Protected species that is only naturally found within the area of Hamford Water.

The surveyed site has an extensive borrowdyke and ditch network, largely dominated by reeds, and a dried out pond with reeds within the central section. Reedbeds often have interesting invertebrate assemblages. The reedbeds within the borrowdykes have suitable habitat for the Starlet Sea Anemone (*Nematostella vectensis*), a Schedule 5 species that is found in only a handful of places in the UK, with the adjacent Hamford Water being a known stronghold for the species.

## **12.5 Population Assessment**

The total national population of the Fisher's Estuarine Moth is estimated at 1,000 – 5,000 adults (C. Gibson, 2000), though it is likely to be higher now that conservation efforts have increased within the area. However, they are so localised to small areas of coastline in Essex that the value of any site population will be of at least 'national' level.

The Starlet Sea Anemone is a Schedule 5 species and any population found at the surveyed site is likely to be of 'national' value.

## 12.6 **Impact Assessment**

### 12.6.1 **Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table:

Species	Type of Impact	Scale of Impact	Likelihood of occurrence in the absence of mitigation
Fisher's Estuarine moth	Killing or injuring individuals	Major adverse at national level	Probable
Fisher's Estuarine Moth and Starlet Sea Anemone	Damage or destruction of feeding and breeding habitat	Major adverse at national level	Certain
Reedbed assemblage	Damage to foraging and breeding habitat	Minor adverse at site level	Certain

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

Due to the planned managed realignment, all habitats within the site are expected to be drastically altered, being subject to saltwater inundation and eventual mudflat and saltmarsh creation. The onsite areas of reed will change from brackish to salt water, which will negatively affect any invertebrate assemblages that are intolerant of higher salt levels.

Water levels will also rise within the site, and this will make the currently protected landward side of the sea wall unsuitable for Hog's Fennel and, therefore, unsuitable for the Fisher's Estuarine Moth, which relies on the fennel for food and the long grass for egg-laying

s

Any new borrowdyke associated with the creation of a new seawall as a counter wall at the northern boundary of the site will eventually provide suitable habitat for species which currently use the existing borrowdyke. However, it will take a few years for the flora of the borrowdykes to establish and so there will be a period of time where there is no suitable habitat.

### 12.6.2 **Zone of Influence**

We do not anticipate any significant impacts on invertebrates outside of the boundaries of the site.



## 12.7 **Recommendations**

A survey will be needed to establish whether Fisher's Estuarine Moth is present in the areas of Hog's Fennel, in which case a Natural England mitigation licence will have to be secured in order to allow the loss of habitat. The survey method involves searching for signs of Fisher's Estuarine Moth by checking Hog's Fennel plants for frass volcanoes in July and August.

A survey of the ditches for the Starlet Sea Anemone will also be needed to establish if they are present. This involves the use of nets, dredges and a core-sampler.

A survey will also be required to assess the invertebrate assemblages of the borrowdykes and ditches. Water beetles are generally considered the best species to target in brackish and freshwater sampling as they can be relatively easy to identify. A water beetle survey consists of a sample station of each borrowdyke/ditch to get a representative sample of the site.

## **13. SPECIES OF PRINCIPAL IMPORTANCE IN ENGLAND**

### **13.1 Legal Status**

This section considers those species listed by the Secretary of State, as required by Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 that are not covered in the preceding sections. Although the majority of these “Species of Principal Importance in England” (formerly described as UK BAP Priority species) receive no direct legal protection, the Natural Environment and Rural Communities (NERC) Act 2006 places an obligation on local authorities to have regard to their conservation and this is most obviously brought to bear through their planning control functions. As such, the presence of such species can be a material consideration to a planning decision.

It should be noted that some of these species do also receive legal protection, but not in a way that is considered relevant to this proposal (such as prevention of unlawful sale). Furthermore, some of the species in the preceding sections are also Species of Principal Importance in England.

Any invertebrate Species of Principal Important are covered in section 13, above.

### **13.2 Data Search Results**

There are no records of non-invertebrate SPIE from the data search area.

### **13.3 Assessment Methodology**

The site was assessed for those non-invertebrate SPIE considered likely to occur here, notably Brown Hare and Hedgehog. The habitat requirements of these species were considered whilst undertaking the overall habitat assessment and any activity or other evidence of presence was noted.

### **13.4 Assessment Results**

Several Brown Hare were observed during the survey and this species is considered likely to breed in arable fields here and on adjacent farmland.

No Hedgehogs or evidence of their presence was recorded, but suitable habitat is present in the form of tall grassland and scrub.

### 13.5 **Population Assessments**

Populations of Brown Hare and Hedgehog are likely to be of 'local' level value.

### 13.6 **Impact Assessment**

#### 13.6.1 **Site Impacts**

The on-site impacts that may result from the proposals, as they are understood at present, are presented in the following table:

<b>Species Present</b>	<b>Impact</b>	<b>Scale of Impact</b>	<b>Likelihood of occurrence in the absence of mitigation</b>
Brown Hare / Hedgehog	Killing or injury of individual animals	Moderate adverse at site level	Unlikely Probable
Brown Hare / Hedgehog	Loss of habitat	Major adverse at site level	Certain

Likelihood rating: 'certain' (95%+), 'probable' (50% to 94%), 'unlikely' (5% to 49%) or 'extremely unlikely' (less than 5%) (as per IHEM, 2006).

The proposed works will inevitably involve the loss of breeding and foraging habitat for Brown Hares and, if present, Hedgehogs.

#### 13.6.2 **Zone of Influence**

We do not anticipate any significant impacts on Brown Hares or Hedgehogs beyond the boundaries of the surveyed site.

### 13.7 **Recommendations**

Brown Hares are likely to be displaced into adjacent farmland as works commence. However, as loss of habitat is inevitable, a survey of the site population is recommended to establish the size of the population and the extent of appropriate mitigation measures.

## 14. REVIEW

### 14.1 Limitations of the Survey

There were no significant limitations to the survey.

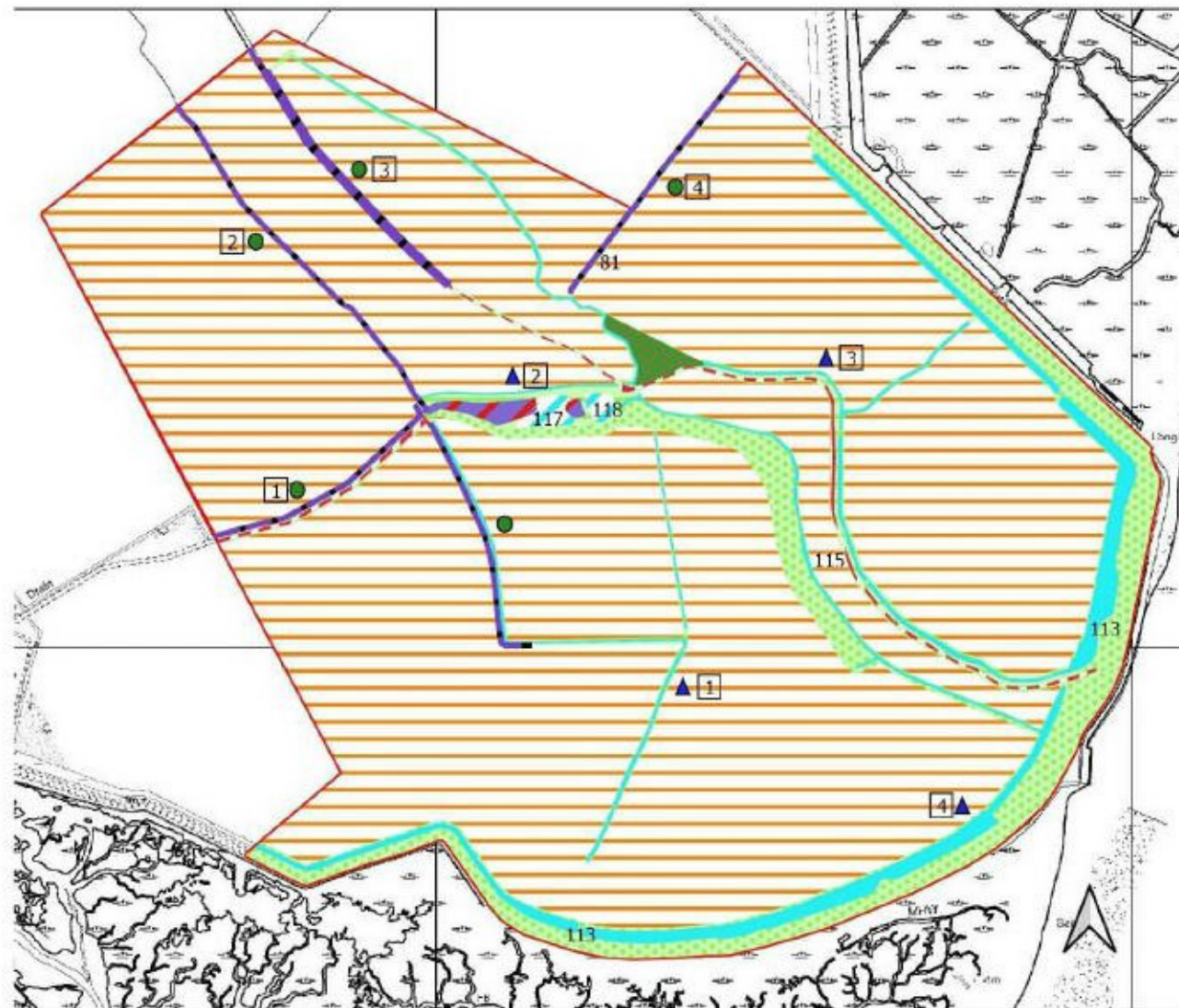
### 14.2 Report Review

The advice given in this report is valid for 24 months. If, after this time, the proposed work has not been undertaken, the advice of an ecologist should be sought as to the possible need for a new survey prior to submitting a planning application or implementing the scheme. Notwithstanding this, any obvious material changes in the area, such as the excavation of potential new Badger setts, the growth of tall vegetation over previously cultivated land, or changes in the scheme design, should be reported to EECOS prior to any work commencing on site so that the advice herein can be revised, if necessary.

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Map 1 – Habitat Map



Map 1. Habitat Map

Primary habitats

- h2a - hedgerow (priority habitat)
- g3c - other neutral grassland
- g3c5 - Arrhenatherum neutral grassland
- w1g - other woodland-broadleaved
- h3 - dense scrub
- c1c - cereal crops
- u1b - developed land, sealed surface
- r - ditches and borrowdykes
- r1 - ponds
- Site boundary

Secondary codes

- 81 - flailed hedgerow
- 113 - seawall
- 115 - track
- 117 - dry
- 118 - mesic

- Hedgerow number
- ▲ Ditch/borrowdyke number



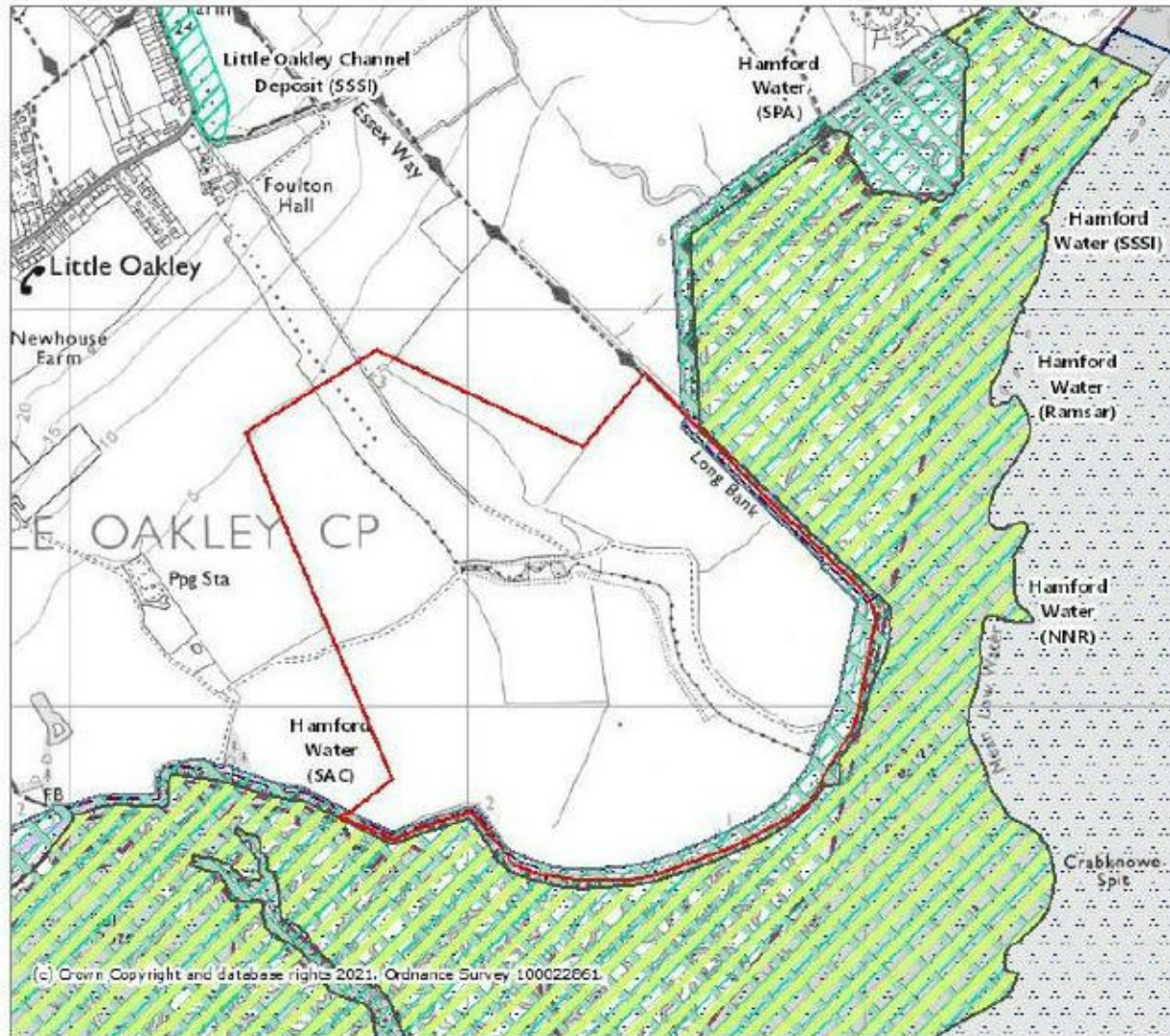
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## Map 2 – Designated Sites

# MAGiC



### Legend

- National Nature Reserves (England)
- Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

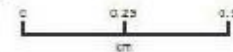
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## Appendix 1: Plant List

Common Name	Scientific Name
Sycamore	<i>Acer pseudoplatanus</i>
Sea Couch	<i>Agropyron pungens</i>
Black-grass	<i>Alopecurus myosuroides</i>
Meadow Foxtail	<i>Alopecurus pratensis</i>
Creeping bent	<i>Agrostis stolonifera</i>
Sweet Vernal grass	<i>Anthoxanthum odoratum</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
False Oat-grass	<i>Arrhenatherum elatius</i>
Common Wild Oat	<i>Avena fatua</i>
Soft Brome	<i>Bromus hordeaceus</i>
Barren Brome	<i>Bromus sterilis</i>
Sea Club Rush	<i>Bolboschoenus maritimus</i>
Sedge	<i>Carex sp.</i>
False Fox-sedge	<i>Carex otrubae</i>
Chalk Knapweed	<i>Centaurea debauxii</i>
Common Mouse-ear	<i>Cerastium fontanum</i>
Creeping Thistle	<i>Cirsium arvense</i>
Hawthorn	<i>Crataegus monogyna</i>
Crested Dog's-tail	<i>Cynosurus cristatus</i>
Cock's-foot	<i>Dactylis glomerata</i>
Wild Carrot	<i>Daucus carota</i>
Cut-leaved Cranesbill	<i>Geranium dissectum</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Hogweed	<i>Heracleum sphondylium</i>
White Dead-nettle	<i>Lamium album</i>
Grass Vetchling	<i>Lathyrus nissolia</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>
Common Mallow	<i>Malva sylvestris</i>

Common Poppy	<i>Papaver rhoeas</i>
Amphibious Bistort	<i>Persicaria amphibia</i>
Hog's Fennel	<i>Peucedanum officinale</i>
Common Reed	<i>Phragmites australis</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rough Meadow grass	<i>Poa trivialis</i>
Fennel-leaved Pondweed	<i>Potamogeton pectinatus</i>
Blackthorn	<i>Prunus spinosa</i>
Pedunculate Oak	<i>Quercus robur</i>
Common Water-crowfoot	<i>Ranunculus aquatilis</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Dog Rose	<i>Rosa canina</i>
Bramble	<i>Rubus fruticosus</i> agg.
Curled dock	<i>Rumex crispus</i>
Willow	<i>Salix</i> sp.
Bittersweet	<i>Solanum dulcamara</i>
Cord grass	<i>Spartina</i> sp.
Salsify	<i>Tragopogon porrifolius</i>
Sea Clover	<i>Trifolium squamosum</i>
Scentless Mayweed	<i>Tripleurospermum inodorum</i>
Common Nettle	<i>Urtica dioica</i>

## Appendix 2: Photographs



**Photograph 1** – The main track through the site facing west with grass verges and ditch and hedgerow to the right.



**Photograph 2** – View of central grass bund, facing west.



**Photograph 3** – The dried out western pond within the central area.



**Photograph 4** – The eastern pond with shallow water.



**Photograph 5** – Central wooded area.



**Photograph 6** – View of the south western borrowdyke.



**Photograph 7** – View of the south eastern borrowdyke.