

**Langstone FCERM Scheme Environmental
Statement**

Appendix L1

Preliminary Ecological Appraisal (PEA)

November 2020

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1 Assessment method

A desktop assessment was undertaken following collation of data from Hampshire Biodiversity Records Centre (HBIC) (January 2018), www.magic.gov.uk and aerial imagery. In addition, a site visit was undertaken on the 24/04/2018 by Ed Rowsell, an experienced ecologist and field surveyor.

Although it is outside of the recognised survey seasons for some species or species groups, a reasonable assessment can still be made on the potential suitability of a site for these species.



Figure 1-plan of the site showing the scheme frontage boundary

Habitats and site designations - The site was assessed with regard to the habitats present in line with JNCC guidelines for phase 1 habitat survey (as updated 2003) and CIEEM Guidelines for Preliminary Ecological Appraisal (as updated December 2017). A species list was also recorded, and a desktop assessment undertaken utilising data from HBIC, MAGIC and aerial imagery (Channel Coast Observatory, 2016).

HBIC, MAGIC and Natural England designated sites view system were searched to identify any relevant designations. Various site-based designations are considered to be of international importance, including Special Protection Area (SPA), Special Area of Conservation (SAC), and Ramsar sites, which were searched for within a 7km radius. Designated sites of national importance include Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR), searched within a 2km radius. Sites of local importance, including Sites of Importance for Nature Conservation (SINC) and Local Nature Reserves (LNR) were also searched within 2km radius of the scheme.

Sites within this hierarchy receive varying levels of legal or policy level protection. Certain habitats and feature of habitats (ancient woodland and veteran trees) are considered under the National Planning Policy Framework (NPPF) as irreplaceable habitat. Many habitats are considered to be of principal importance under the Natural Environment Rural Communities (NERC) Act 2006, hereafter referred to as the 'NERC Act', and local authorities and other public bodies have a legal duty to have regard for their conservation. Because of this they are a material consideration in the planning process.

Limitations: All areas were only accessed from the public realm; no private land or property was accessed during with survey. The survey was undertaken outside of the optimal survey season for botanical interest. Due to the time of year, some plants have not yet emerged. But on the whole a habitat level assessment can be effectively undertaken at any time of year.

Bats - From ground level, structures and trees were assessed for their potential to provide roosting or foraging opportunities to bats. Where observed, significant features suitable for roosting bats were recorded, but no systematic external inspection was undertaken.

A data search was undertaken for local records of bat species held by Hampshire Biodiversity Information Centre.

All bat species are legally protected under Annex IV of the EU Habitats Directive (Council Directive 92/43/EEC), which is transposed into UK law via the Conservation of Habitats and Species Regulations 2017. All species of bat are also protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to;

- Deliberately kill, injure or capture bats;
- Deliberately disturb bats in such a way as to be likely to significantly affect i) the ability of any significant group of bats to survive, breed or rear or nurture their young, or ii) the local distribution or abundance of bats;
- Intentionally or recklessly disturb any bat whilst it is occupying a roost;
- Damage or destroy bat roosts; and
- intentionally or recklessly obstruct access to a bat roost

All bat species are species of principal importance under the NERC Act, and local authorities and other public bodies have a legal duty to take their conservation into account. Because of this they are a material consideration in the planning process.

Limitations: Only a very basic level assessment was made and it does not constitute a preliminary bat survey under the 'Bat Surveys for Professional Ecologists-3rd Edition (2016)' best practice guidance.

Birds - A desktop study was undertaken utilising data from HBIC, MAGIC and designated sites view. Any birds present during the field survey were identified visually or by vocalisations and in addition suitable habitat was assessed for over-wintering and bird nesting potential.

Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EC Birds Directive, which came into force in April 1979, and is transposed into UK Law through the Conservation of Habitats and Species Regulations 2017. Potential SPAs are provided the same level of protection as classified sites. Ramsar sites are wetlands of international importance designated under the Ramsar Convention 1971, and it is UK policy to give Ramsar sites the same level of protection as SPAs.

Under the Wildlife and Countryside Act it is an offence to destroy or damage the nest of birds of any species. In addition, certain species covered by Schedule 1 of the Act are specially protected.

Many bird species are species of principal importance under the NERC Act, and local authorities and other public bodies have a legal duty to take their conservation into account. Because of this they are a material consideration in the planning process.

Limitation: The appraisal was undertaken outside of the optimal surveying season for over-wintering birds.

Amphibians - an assessment in accordance with Oldman et al, 2000 of the suitability of the habitat was made, together with an assessment of nearby habitat and an HBIC data search was undertaken. Of most relevance here is Great Crested Newt *Triturus cristatus*, which is the only fully protected species potentially present.

Great crested newts are listed on Appendix II of the Bern Convention and on Annexes II and IV of the EU Habitats Directive. In England and Wales, the great crested newt is protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Offences can be committed through;

- capturing, killing, disturbing or injuring great crested newts deliberately
- damaging or destroying a breeding or resting place
- obstructing access to their resting or sheltering places (deliberately or by not taking enough care)
- possessing, selling, controlling or transporting live or dead newts, or parts of them taking great crested newt eggs

Limitations: Although outside of the recognised survey season, it is not felt the efficacy of the desktop and habitat assessment were affected by the time of year that this assessment was undertaken.

Reptiles - Habitat suitability for reptile species was assessed and local records were searched for within HBIC data.

All reptiles are protected under the Wildlife and Countryside Act 1981 (as amended), making it illegal to intentionally or recklessly kill or injure a common reptile. Rare reptiles (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*) also receive legal protection under the Conservation of Habitats and Species Regulations 2017. It is an offence to deliberately injure, kill, capture or disturb a rare reptile, or to damage or obstruct any place used for shelter or protection. Rare reptiles may only be disturbed by licensed ecologists.

All reptile species are species of principal importance under the NERC Act, and local authorities and other public bodies have a legal duty to take their conservation into account. Because of this they are a material consideration in the planning process.

Limitations: Although not all areas could be accessed, there is not considered to be any limitation in the ability to determine the potential for reptiles with habitats on the site.

Aquatic mammals - Habitat suitability was assessed and HBIC records were searched, particularly with regard to water vole *Arvicola amphibius* and otter *Lutra lutra*. Habitat suitability for water vole was assessed in line with 'The Water Vole Conservation Handbook- Strachan et al (2011)' and for Otter in accordance with 'Ecology of the

European Otter- Chanin (2003)'.

Water voles and their habitat are provided full legal protection under Schedule 5 (section 9) of the Wildlife and Countryside Act 1981 (as amended), which makes it illegal to intentionally kill, injure or take water voles and to damage, disturb or destroy their 'place of shelter', i.e. their habitat. The species is also listed as a species of principal importance under s41 of the NERC Act.

Otter is a European protected species (EPS) and is also fully protected under Schedule 5 of the Wildlife and Countryside Act 1981.

You're breaking the law if you:

- capture, kill, disturb or injure otters (on purpose or by not taking enough care)
- damage or destroy a breeding or resting place (deliberately or by not taking enough care)
- obstruct access to their resting or sheltering places (deliberately or by not taking enough care)
- possess, sell, control or transport live or dead otters, or parts of otters

Limitations: it is not considered that there were any limitations to assessing the habitat potential for these species.

Hazel dormouse - an assessment of the suitability of the habitat, any visible field signs and an HBIC data search were undertaken. Habitat suitability and visible fields signs were assessed in accordance with the 'Hazel Dormouse Conservation Handbook-Morris et al (2006). Hazel Dormouse *Muscardinus avellanarius* is protected under;

- Wildlife and Countryside Act 1981
- Countryside and Rights Of Way Act 2000
- The Natural Environment and Rural Communities Act 2006
- The Conservation of Habitats and Species Regulations 2017

An offence could be committed if you:

- deliberately capture, injure or kill hazel dormice
- damage or destroy a dormouse resting place or breeding site
- deliberately or recklessly disturb a hazel dormouse while it's in a structure or place of shelter or protection
- block access to structures or places of shelter or protection
- possess, sell, control or transport live or dead hazel dormice, or parts of hazel dormice

Limitations: No systematic search was undertaken for field signs.

Badger - an assessment of the suitability of the habitat, any visible field signs (runs, latrines, snuffle holes and setts) and an HBIC data search were undertaken. Habitat suitability and visible fields signs were assessed in accordance with 'Surveying Badgers-Harris et al (1989)'.

Badgers *Meles meles* are protected and so are their setts. Under the Protection of Badgers Act 1992 in England and Wales it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so).
- Cruelly ill-treat a badger.
- Dig for a badger.

- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it.
- Cause a dog to enter a badger sett.
- Disturb a badger when it is occupying a sett.

Limitations: No systematic search was undertaken for field signs.

2 Planning policy

2.1 National planning policy

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. Of particular relevance in this context is section 15- Conserving and enhancing the natural environment, which includes the following provisions;

Paragraph 170- July 2018

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

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Paragraph 175- July 2018

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in

combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

2.2 Local planning policy

The Core Strategy of the Havant Borough Council adopted local plan 2011 includes the following policy.

Policy CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough

Planning permission will be granted for development that:

- 1. Ensures the key landscape and built form principles set out in the Havant Borough Townscape, Landscape and Seascape Character Assessment are protected and where possible enhanced by partnership working with developers, groups and the wider community.*
- 2. Protects and where possible enhances the borough's statutory and non-statutory designated landscape, habitats and features of biological, hydrological or geological interest. Protection and enhancement will be achieved by appropriate adaptation and mitigation measures including wardening, education and information and the creation of new habitats, water bodies/courses planting of new trees and woodland.*
- 3. Has particular regard to the following hierarchy of nature conservation designations within the borough (as identified on the Proposals Map): (i) Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar [International]. (ii) Sites of Special Scientific Interest (SSSI) and National Nature Reserves [National]. (iii) Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), other Ancient Woodland not identified in (ii) above [Local].*
- 4. Protects and where appropriate enhances the borough's statutory and non-statutory heritage designations by appropriately managing development in or adjacent to conservation areas, listed buildings, scheduled ancient monuments, historic parks and gardens, archaeological sites, buildings of local historic or architectural interest.*
- 5. Supports an ongoing programme of survey of habitats and species and designation of Sites of Importance for Nature Conservation.*

6. *Incorporates partnership working with conservation organisations to improve public understanding of biodiversity and to manage public access to designated sites, particularly on the coast, to reduce harm to nature conservation interests.*
7. *Incorporates partnership working with landowners and developers to ensure land management practices restore, enhance and where appropriate create new valued landscapes, habitats and their soil structure, particularly the ancient woodland remnants of the Forest of Bere and coastal salt marsh.*
8. *Protects wildlife habitats and wildlife corridors to prevent the fragmentation of existing habitats and to allow species, for example Brent Geese, to respond to the impacts of climate change by making provision for habitat adaptation e.g. coastal managed realignment and species migration.*
9. *Maintains undeveloped gaps between the settlements of Emsworth/Havant; Havant/Waterlooville; Havant/Portsmouth; Emsworth/Westbourne and Leigh Park/Rowlands Castle as shown on the Proposals Map.*
10. *Protects the best and most versatile agricultural land that has the greatest potential for local food security.*
11. *Responds to the emerging evidence from the Solent Disturbance and Mitigation Project, the published recommendations, and future related research.*

3 Findings and recommendations

3.1 Habitats and site designations

Of most significance the proposed scheme is adjacent to the Solent Maritime Special Area of Conservation (SAC), Chichester and Langstone Harbours Special Protection Area (SPA) and Ramsar site, Chichester Harbour Site of Special Scientific Interest (SSSI) and Langstone Harbour SSSI. There are an additional 2 SPAs and 1 Ramsar site within 7km of the proposal and 1 SSSI within 2km of the scheme.

Table 1: Statutory environmental designation within 7km of the site (SSSI within 2km of site)

Statutory Nature Conservations	Designation	Distance and direction
Solent Maritime	SAC	Adjacent
Chichester and Langstone Harbours	SPA	Adjacent
Chichester and Langstone Harbours	Ramsar	Adjacent
Chichester Harbour	AONB	Adjacent
Chichester Harbour	SSSI	Adjacent
Langstone Harbour	SSSI	Adjacent
Warblington Meadow	SSSI	1.1 km (north east)
South Downs	National Park	5 km (north east)
Solent and Dorset Coast	pSPA	6 km (south)
Portsmouth Harbour	SPA	6.6 km (west)
Portsmouth Harbour	Ramsar	6.6 km (west)

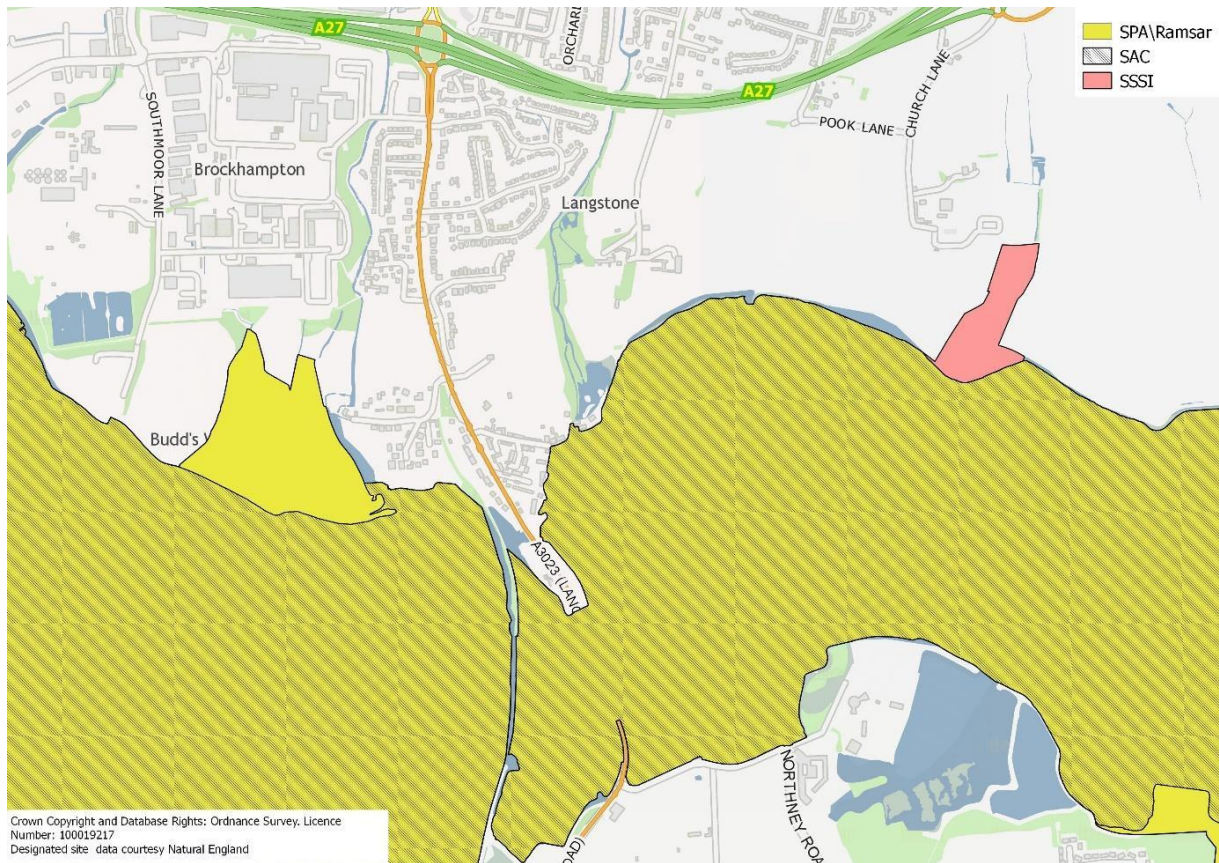


Figure 2- map of international and national nature conservation designations, please note all SPA/Ramsar and SAC is also SSSI

The proposed work area is immediately adjacent to Chichester and Langstone Harbours SPA. The SPA qualifies under the Birds Directive (79/409/EEC) by supporting breeding and overwintering populations of species of European importance, supporting three species of breeding tern; Common Tern (*Sterna hirundo*), Sandwich tern (*Sterna sandvicensis*) and Little tern (*Sterna albifrons*), and non-breeding populations of Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dark-bellied brent goose (*Branta bernicla bernicla*), Dunlin (*Calidris alpina alpina*), Grey plover (*Pluvialis squatarola*), Pintail (*Anas acuta*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Ringed plover (*Charadrius hiaticula*), Sanderling (*Calidris alba*), Shelduck (*Tadorna tadorna*), Shoveler (*Anas clypeata*), Teal (*Anas crecca*), Turnstone (*Arenaria interpres*), and Wigeon (*Anas penelope*). The site also qualifies by regularly supporting 93,142 individual waterfowl (5 year peak mean 1991/2 – 1995/6).

Chichester and Langstone Harbours Ramsar site also covers the same extent as Chichester and Langstone Harbours SPA. The Ramsar site qualifies under Ramsar Criteria 1, 5 and 6. Ramsar Criterion 1 states that 'A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic range'. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes. Ramsar Criterion 5 states that 'A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds'. The harbours regularly support large numbers of non-breeding waterbirds, with the average for the 5 years up to 2008/2009 in excess of 82,000 birds for the harbours (BTO, 2009), as well as supporting significant numbers of migratory wild bird

species. Over those 5 winters the harbours have been the overwintering site for over 5% of the world population of Dark-bellied Brent Geese (Stillman et al. 2009), therefore qualifying under Ramsar Criterion 6. The site is also internationally important for Black-tailed godwit and Dunlin, and nationally important for Red-breasted merganser, Grey plover (*Pluvialis squatarola*), and Turnstone (*Arenaria interpres*) (BTO, 2019).

The Solent Maritime SAC is adjacent to the proposal site. The SAC is primarily designated for the presence of estuarine, spartina sward (*Spartinion maritimae*) and Atlantic salt meadow (*Glauco-Puccinellietalia maritimae*) habitats. Seven additional Annex 1 habitats, including coastal dunes, sandbanks, mudflats and sandflats, are also present as qualifying features.

Table 2: Sites of Special Scientific Interest units within 2km of the site

Name	Designation	Distance and direction	Condition
Chichester Harbour 11	SSSI unit	Adjacent	Unfavourable recovering
Langstone Harbour 6	SSSI unit	Adjacent	Unfavourable recovering
Chichester Harbour 10	SSSI unit	350m (south east)	Unfavourable recovering
Langstone Harbour 5	SSSI unit	350m (west)	Unfavourable no change
Langstone Harbour 7	SSSI unit	700m (south)	Unfavourable recovering
Langstone Harbour 12	SSSI unit	1,050m (south)	Unfavourable recovering
Warblington Meadow 1	SSSI unit	1,100m (north east)	Unfavourable recovering
Langstone Harbour 13	SSSI unit	1,450m (west)	Unfavourable recovering
Chichester Harbour 9	SSSI unit	1,650m (south east)	Unfavourable no change
Langstone Harbour 14	SSSI unit	1,650m (south west)	Unfavourable recovering
Chichester Harbour 8	SSSI unit	1,800m (south east)	Unfavourable recovering

Langstone Harbour SSSI and Chichester Harbour SSSI are located immediately adjacent to the scheme boundary, the two SSSI are contiguous but split along the line of the Hayling Billy railway. The sites include one of the largest expanses of mixed saltmarsh on the south coast. This area of rich intertidal system is of international importance, supporting high densities of intertidal invertebrates and large populations of migrant and overwintering waders and wildfowl. Brent Goose and Dunlin are among the key feature species of the site.

Table 3: Sites of Importance for Nature Conservation (SINC) within 2km of the site

SINC name	Distance and direction
Langstone Mill Pond	Adjacent (north)
Hayling Billy Line	600m (south)
Wade Court Park	650m (north)
Southmoor Reserve	700m (north west)
West of North Hayling B	750m (south east)
Warblington Castle Farm West	800m (north east)
East of Pyecroft's Meadow	800m (south)
Pyecroft's Meadow	800m (south)
Southmoor - Big Field (south edge)	850m (west)
North Common & Saltmarsh	950m (south east)
West of North Hayling D	1050m (south east)

SINC name	Distance and direction
North Common East	1200m (south east)
Warblington Castle Farm East E	1250m (east)
North of Northney Road	1300m (south east)
Stoke Common	1300m (south)
Warblington Castle Farm East D	1450m (east)
West of North Hayling F	1550m (south east)
Conigar Point Meadows	1650m (east)
East of St Peters Road A	1650m (south east)
East of St Peters Road D	1800m (south east)
Nore Grassland & Saltmarsh	1850m (east)
Brook Farm B	1850m (north east)
West of North Hayling G	1850m (south east)
Broadmarsh Playing Field	1950m (north west)

There are 24 Site of Importance for Nature Conservation (SINC) within 2km of the site and of most significance is the Langstone Mill Pond, which is adjacent to the scheme boundary. SINC's are local wildlife sites designated for their importance for wildlife at a county level. Although not provided any statutory protection, they are given policy level protection under Havant Borough Council's planning policy.

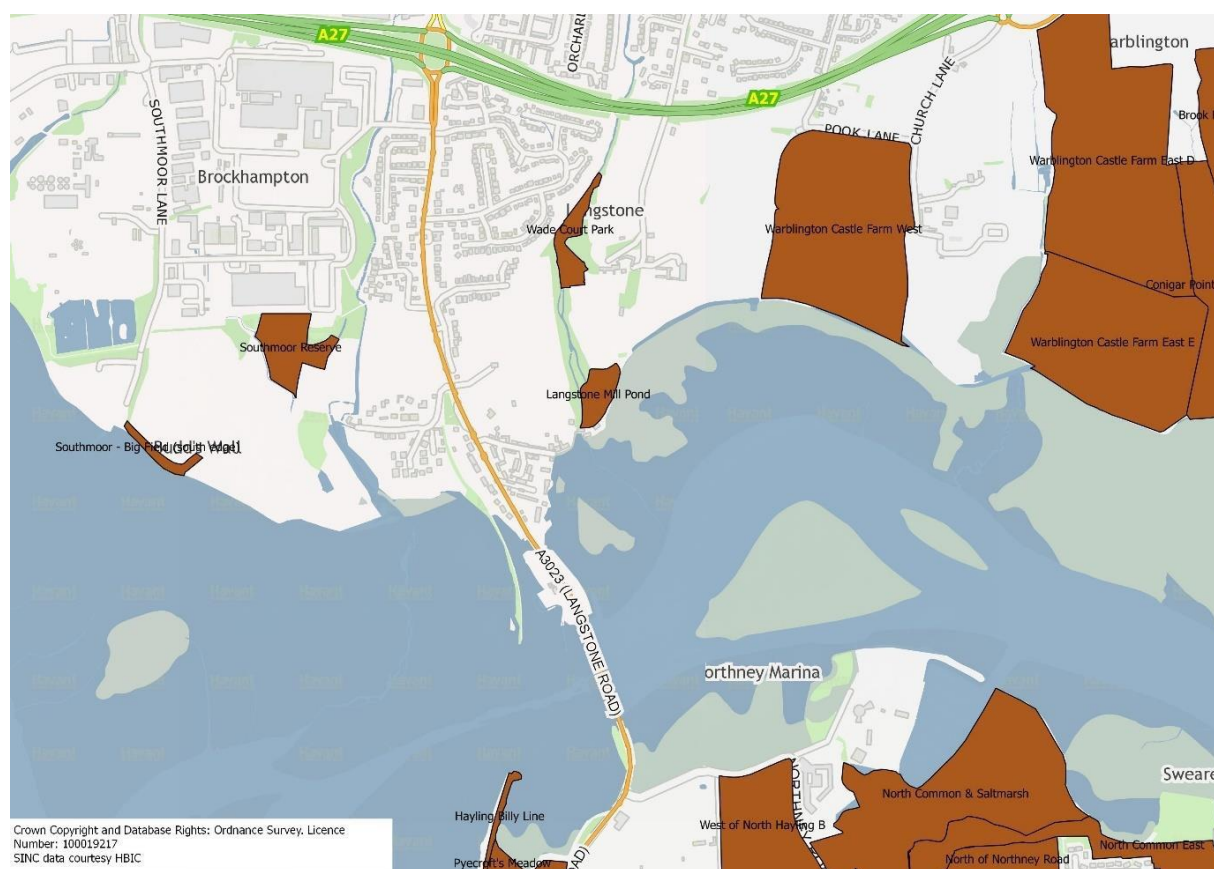


Figure 3- Sites of Importance for Nature Conservation (SINC) in the scheme area

There are a number of notable habitats within the area, including priority habitats such as intertidal mudflat, coastal saltmarsh, vegetated shingle and wet woodland. A phase 1 habitat survey map has been included at **Annex A**.

HBIC data identifies a number of notable plant species that are typical of these habitats including 4 species of glasswort/*Salicornia* spp, nationally scarce Slender Hares-ear *Bupleurum tenuissimum*, Golden Samphire *Inula crithmoides* and Divided Sedge *Carex divisa*.

Conclusion: The proposed scheme boundary includes a number of protected and valued habitats and their constituent species; which could be harmed by the proposed scheme. Further investigation is required to ensure any impacts can be avoided or reduced.

Recent case law and policy positions require that any identified Likely Significant Effects to European protected sites, should be assessed through an Appropriate Assessment, rather than screened out at Habitat Regulations Assessment Stage 1 when potential mitigation is introduced. Furthermore, it is currently advised that **any** habitat loss within a European site is considered an adverse impact on site integrity, therefore any encroachment into sites must now be dealt with via derogation, (e.g. an IROPI case). Whereby there can be no satisfactory alternatives, the projects is of overriding public interest and the loss must be compensated.

Recommendation: Legal and policy level protection requires that any potential direct, indirect or cumulative impacts on designated sites, habitats and species are fully assessed.

- A full Habitat Regulations Assessment including Appropriate Assessment will be required.
- Detailed botanical survey to NVC/IHS level to be undertaken in areas of valued habitat, that are to be affected by the scheme.
- Phase 1 intertidal biotope mapping of frontage will be undertaken.

3.2 Individual species/groups assessment

3.2.1 Bats

HBIC records indicate 10 species of bat have been recorded within 2km of the proposed scheme. The hinterland of the scheme includes areas that would be considered high quality bat foraging habitat. No trees or structures were identified as possible roosts, although many of the structures on the frontage are of an older construction and contain features that are suitable access points for bat species.

Conclusion: Until there is further information on the preferred option for this scheme, it is difficult to determine the likely effect on bat species, but in most scenarios the impact is likely to be minimal, with limited impact on foraging habitat, although very site-specific issues have the potential for harm if not adequately assessed.

Recommendation: Legal and policy level protection requires that any potential impacts on bat species are fully assessed.

- Leading design options are assessed for potential to harm bat roosting and foraging habitat.
- Preliminary bat surveys undertaken for all trees and structures that require removal or modification or could be subject to levels of noise and vibrational disturbance
- If significant areas of foraging habitat are to be lost either temporarily or permanently, bat activity surveys to be undertaken.

- Bat sensitive working practices to be adopted.

3.2.2 Birds

HBIC notable records within 2km of the site include 50 red list (BoCC4), 23 NERC s41 species and a number of species provided with special protection under Schedule 1 of the Wildlife and Countryside Act. These include Cetti's warbler *Cettia cetti*, which were also noted during the field visit - 2 singing male Cetti's warblers and a number of little egrets *Egretta garzetta* were observed at Langstone Mill Pond. Langstone Mill Pond is an established site for breeding little egret and is believed to be the only location in the UK where egrets breed outside of an existing heronry.

The SPA adjacent to the site is important for over-wintering wildfowl and waders and WeBS data indicates that the mudflats are well used by species including dark-bellied brent goose, bar-tailed godwit, black-tailed godwit, redshank and wigeon. The SPA is also designated for three species of breeding tern, the nearest colony is the Oyster Beds which is situated around 500m to the south of the scheme on Hayling Island.

There are 24 Solent Waders and Brent Goose Strategy (SWBGS 2017) Sites within 1km of the scheme, including 7 sites of primary importance (see **Annex D**). The SWBGS 2017 identifies sites outside of the SPA that are of importance (functionally linked land) to the overwintering wader and brent goose populations.

Conclusion: It is clear that the site is of considerable importance to birds of conservation concern, both in the breeding and non-breeding season. Without careful assessment and mitigation there is considerable potential for impacts on important bird populations, which could significantly restrict working windows or practices on site. It is likely that this scheme could result in significant effects on Schedule 1 and rare breeding birds, breeding terns and over-wintering bird populations.

Recommendation: Legal and policy level protection requires that any potential impacts on bird populations are fully assessed.

- Undertake a breeding bird survey with a particular focus on the Schedule 1 species and rare breeding birds.
- Analyse existing data for breeding terns and undertake noise modelling to understand the effect of the scheme on the tern breeding colony.
- Analyse existing WeBS data and if required undertake further over-wintering bird surveys to understand the effect of the scheme on overwintering populations. Two surveys per month from September to March.

3.2.3 Amphibians

There are no records of great crested newt within 2km of the proposal site and the Mill Pond is believed to be brackish and therefore unsuitable for this species.

Recommendation: until options are further developed it is not clear whether there will be any impacts upon freshwater habitats. But it would be prudent to ensure there is limited potential for harm to amphibian species particularly protected species.

- Undertake Habitat Suitability Index (HSI) assessment on all potential freshwater habitats within 500m of the proposal and if required undertake phase 2 surveys.

3.2.4 Reptiles

HBIC records note 4 species of reptile (common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus*) have been recorded within 2km of the scheme boundary. Surveys on Southmoor (adjacent to the western extent of the site) discovered a strong population of common lizard and slow-worm in 2017.

Field survey identified significant areas of potential reptile habitat, principally to the west of the Langstone bridge, with only small pockets of suitable habitat on the eastern part of the frontage.

Conclusion: Without mitigation there is significant potential for harm to reptile species, from any construction activities including site investigations.

Recommendations: Legal and policy level protection requires that any potential impacts on reptile populations are fully assessed.

- Reptile survey in accordance with best practice is undertaken in all suitable habitat.
- Following survey, a reptile avoidance and mitigation strategy may be required
- Ecological supervision is undertaken on all site investigation activity.

3.2.5 Aquatic mammals

HBIC holds records for water vole within 2km of the proposal site and suitable habitat exists within the Mill Pond and River Lavant, although it is currently unclear if the proposal will have any effect on these areas. There are no otter records held by HBIC within 2km of the proposal and a wider search reveals few records in the area, it is clear that the area is not currently of any significant for otter. **No further investigation required for otter.**

Conclusion: Without mitigation if construction or operational activity will affect suitable habitat there is some potential for harm to water vole.

Recommendations: Legal and policy level protection requires that any potential impacts on water vole populations are fully assessed.

- If suitable habitat is going to be affected water vole survey in accordance with best practice is undertaken in all suitable habitat.
- Following survey, a water vole avoidance and mitigation strategy may be required.

3.2.6 Hazel Dormouse

There are no records of Hazel Dormouse within 2km of the proposal and the habitat is considered sub-optimal for this species. **No further assessment required.**

3.2.7 Badger

There are no HBIC records for badger within 2km of the proposal, field survey also did not identify any evidence of badger activity, however it does represent suitable foraging habitat.

Conclusion: It appears unlikely that badger setts are likely to be present within the construction envelope of any option developed for this scheme. However, the site is likely to be within foraging range of badgers and therefore without safe working practices

construction could have potential for harm to badger.

Recommendations: Legal and policy level protection requires that any potential harm to badgers is avoided.

- Badger sensitive working practices to be adopted.

3.2.8 Other species and concerns

The HBIC data search and local knowledge of the site has identified a number of matters requiring attention.

A large number of notable terrestrial invertebrates are recorded including 24 national notable species and 38 NERC s41 species of principal concern, which includes species such as stag beetle *Lucanus cervus*, grayling *Hipparchia semele* and wall *Lasiommata megera* butterflies that are unlikely to be affected by the scheme. It does however indicate a number of species that are coastal habitat specialists, e.g. glasswort moth *Coleophora salicorniae*, sea purslane moth *C. salinella* and saltmarsh moth *C. atriplicis* case-bearers, saltmarsh bell moth *Eucosma tripoliana* and coast neb moth *Monochroa moyses*.

There is a small but growing population of harbour seal *Phoca vitulina* and occasional grey seals *Halichoerus grypus* resident in Chichester and Langstone Harbours. The two main haul out sites in the Solent are approximately 4km from the scheme boundary, however the 2010 Solent Seal Tagging Project recorded seals using all of the harbour area for foraging. Noisy operations such as piling can propagate noise into the water body at levels harmful to marine mammals.

There is potential for migratory fish, many of which are of conservation concern e.g. European eel *Anguilla anguilla* and sea trout *Salmo trutta* morpha *trutta*, to pass through the harbours, and the Langdale Brook may form a migration route for these species. Noisy operations such as piling can propagate noise at levels harmful to fish into the water body and increases in the turbidity of water can also affect resident and migratory fish.

Conclusion: Without further investigation there is potential for harm to both significant terrestrial invertebrates, marine mammals and migratory fish.

Recommendation: Legal and policy level protection requires that any potential harm to protected and notable species is avoided.

- Undertake a detailed analysis of invertebrate records to ascertain species of concern to this project. If required undertake surveys appropriate to that species group.
- Due to known population of seals investigate potential for generating harmful underwater noise levels and if appropriate adopt marine mammal safe working practices.
- Due to potential for harm to fish populations investigate potential for mitigation of generating harmful underwater noise levels and increases in turbidity.

4 Overall conclusions

It is concluded that the scheme is in an area of considerable importance to nature conservation and there are a number of sensitivities that will have to be considered. It is currently unclear at this early stage of scheme design the extent of specific encroachment or other impacts that will arise. Options appraisal of preferred designs will have to be an iterative process to ensure during construction and operation it is the least worst option. Sensitivities include;

- Proximity to internationally important site designations
- Proximity to important breeding bird colonies.
- Known or likely presence of significant protected and conservation concern species

A suite of investigations (noted in the relevant sections) is required to assess the potential for harm to nature conservation interests, which will provide supporting data for future HRA/AA and, if required, EIA documents.

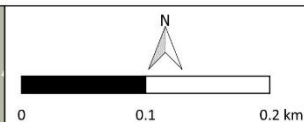
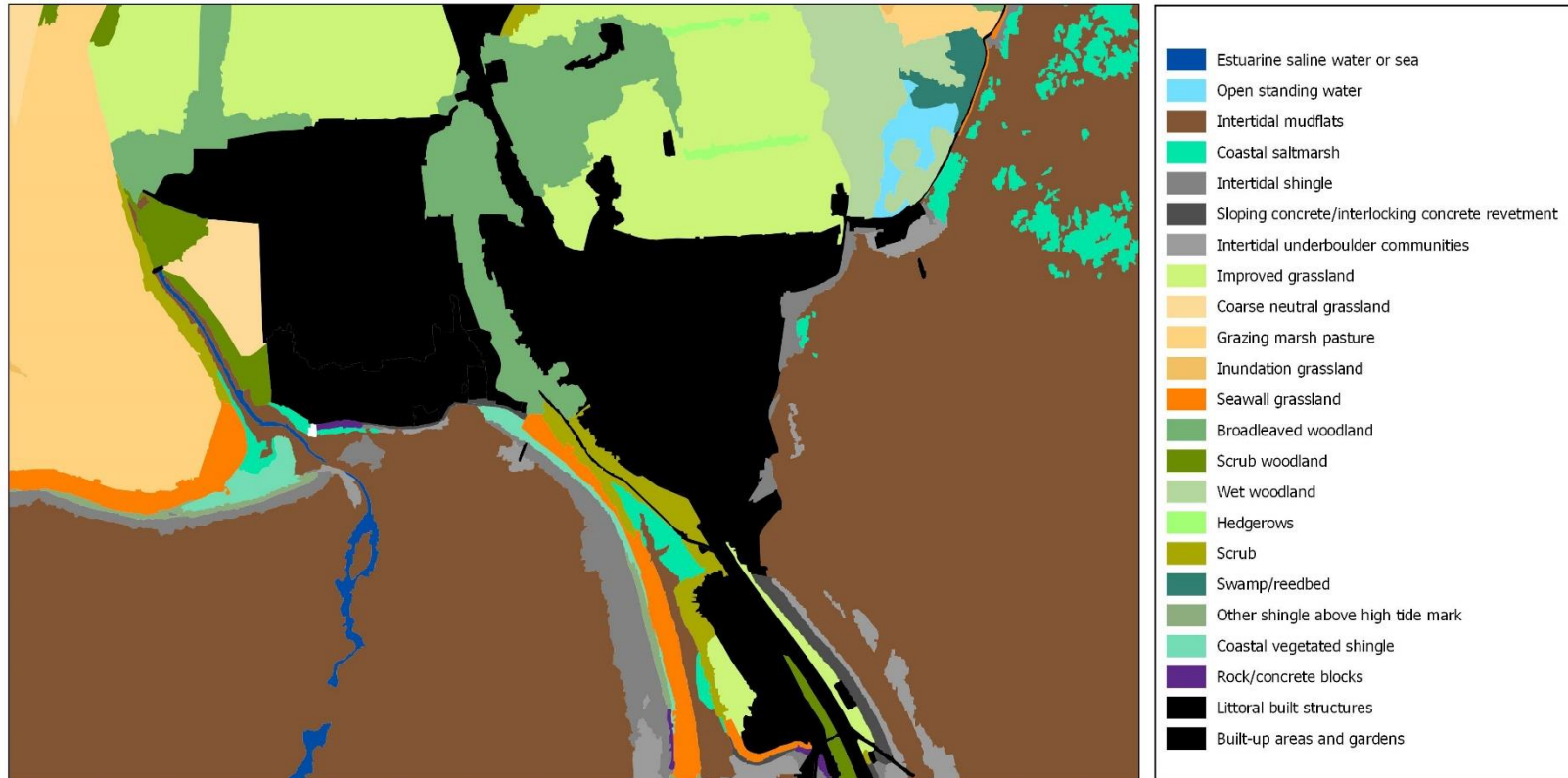
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6 Annexes

Annex A: Habitat map

Habitat Map for Langstone FCERM Scheme



Drawn by: MH Checked by: HJ

Date: 28/10/2020

Annex B: HBIC Notable species

Common name	Taxonomic name	Status
Amphibians & Reptiles		
Slow-worm	Anguis fragilis	s41, s5s91t
Grass Snake	Natrix helvetica	s41, s5s91t
Common Lizard	Zootoca vivipara	s41, s5s91t
Adder	Vipera berus	s41, s5s91t
Birds		
Shelduck	Tadorna tadorna	CI
Redstart	Phoenicurus phoenicurus	CI
Siskin	Spinus spinus	CI
Great Crested Grebe	Podiceps cristatus	CI
Rock Pipit	Anthus petrosus	CR
Shoveler	Anas clypeata	CR
Black-headed Gull	Chroicocephalus ridibundus	CR
Long-eared Owl	Asio otus	CR
Great Black-backed Gull	Larus marinus	CR
Scandinavian Rock Pipit	Anthus petrosus subsp. littoralis	CR
Water Pipit	Anthus spinoletta	CS
Grey Heron	Ardea cinerea	CS
Oystercatcher	Haematopus ostralegus	CS
Wheatear	Oenanthe oenanthe	CS
Sand Martin	Riparia riparia	CS
Water Rail	Rallus aquaticus	CS
Gadwall	Anas strepera	HBAP
Turnstone	Arenaria interpres	HBAP
Knot	Calidris canutus	HBAP
Dunlin	Calidris alpina	HBAP
Red-breasted Merganser	Mergus serrator	HBAP
Reed Warbler	Acrocephalus scirpaceus	HBAP
Redshank	Tringa totanus	HBAP
Sanderling	Calidris alba	HBAP
Bullfinch	Pyrrhula pyrrhula	HBAP
Grey Plover	Pluvialis squatarola	HBAP, CI
Goosander	Mergus merganser	HBAP, CR
Snipe	Gallinago gallinago	HBAP, CS
Greenshank	Tringa nebularia	s1p1
Wryneck	Jynx torquilla	s1p1
Barn Owl	Tyto alba	s1p1
Green Sandpiper	Tringa ochropus	s1p1
Garganey	Anas querquedula	s1p1
Velvet Scoter	Melanitta fusca	s1p1
Serin	Serinus serinus	s1p1

Common name	Taxonomic name	Status
Brambling	<i>Fringilla montifringilla</i>	s1p1
Lapland Bunting	<i>Calcarius lapponicus</i>	s1p1
Purple Sandpiper	<i>Calidris maritima</i>	s1p1
Hoopoe	<i>Upupa epops</i>	s1p1
Shore Lark	<i>Eremophila alpestris</i>	s1p1
Common Crossbill	<i>Loxia curvirostra</i>	s1p1, CS
Little Ringed Plover	<i>Charadrius dubius</i>	s1p1, CS
Black-necked Grebe	<i>Podiceps nigricollis</i>	s1p1, HBAP
Hobby	<i>Falco subbuteo</i>	s1p1, HBAP, CI
Bearded Tit	<i>Panurus biarmicus</i>	s1p1, HBAP, CR
Quail	<i>Coturnix coturnix</i>	s1p1, HBAP, CR
Cetti's Warbler	<i>Cettia cetti</i>	s1p1, HBAP, CS
Firecrest	<i>Regulus ignicapilla</i>	s1p1, HBAP, CS
Dark-bellied Brent Goose	<i>Branta bernicla</i>	s41, HBAP
Reed Bunting	<i>Emberiza schoeniclus</i>	s41, HBAP
Red-necked Grebe	<i>Podiceps grisegena</i>	Red
Grey Wagtail	<i>Motacilla cinerea</i>	Red
Ringed Plover	<i>Charadrius hiaticula</i>	Red
Starling	<i>Sturnus vulgaris</i>	Red
Arctic Skua	<i>Stercorarius parasiticus</i>	Red
Mistle Thrush	<i>Turdus viscivorus</i>	Red
Kittiwake	<i>Rissa tridactyla</i>	Red
Marsh Tit	<i>Poecile palustris</i>	Red
Woodcock	<i>Scolopax rusticola</i>	Red
Twite	<i>Linaria flavirostris</i>	Red
Shag	<i>Phalacrocorax aristotelis</i>	Red
Pied Flycatcher	<i>Ficedula hypoleuca</i>	Red, CR
Lesser Black-backed Gull	<i>Larus fuscus</i>	Red, CR
Herring Gull	<i>Larus argentatus</i>	Red, CR
Linnet	<i>Linaria cannabina</i>	Red, HBAP
Song Thrush	<i>Turdus philomelos</i>	Red, HBAP
White-fronted Goose	<i>Anser albifrons</i>	Red, HBAP
Yellow Wagtail	<i>Motacilla flava</i>	Red, HBAP, CR
Whinchat	<i>Saxicola rubetra</i>	Red, HBAP, CR
Nightingale	<i>Luscinia megarhynchos</i>	Red, HBAP, CS
Pochard	<i>Aythya ferina</i>	Red, HBAP, CS
Corn Bunting	<i>Emberiza calandra</i>	Red, HBAP, CS
Whimbrel	<i>Numenius phaeopus</i>	Red, s1p1
Fieldfare	<i>Turdus pilaris</i>	Red, s1p1
Long-tailed Duck	<i>Clangula hyemalis</i>	Red, s1p1
Redwing	<i>Turdus iliacus</i>	Red, s1p1
Black Redstart	<i>Phoenicurus ochruros</i>	Red, s1p1, CR
Black-tailed Godwit	<i>Limosa limosa</i>	Red, s1p1, HBAP, CI
Curlew	<i>Numenius arquata</i>	Red, s41

Common name	Taxonomic name	Status
Yellowhammer	<i>Emberiza citrinella</i>	Red, s41
Cuckoo	<i>Cuculus canorus</i>	Red, s41
Tree Pipit	<i>Anthus trivialis</i>	Red, s41
House Sparrow	<i>Passer domesticus</i>	Red, s41
Lesser Redpoll	<i>Acanthis cabaret</i>	Red, s41
Ring Ouzel	<i>Turdus torquatus</i>	Red, s41
Wood Warbler	<i>Phylloscopus sibilatrix</i>	Red, s41, CI
Skylark	<i>Alauda arvensis</i>	Red, s41, HBAP
Spotted Flycatcher	<i>Muscicapa striata</i>	Red, s41, HBAP
Grey Partridge	<i>Perdix perdix</i>	Red, s41, HBAP
Lapwing	<i>Vanellus vanellus</i>	Red, s41, HBAP
Turtle Dove	<i>Streptopelia turtur</i>	Red, s41, HBAP
Grasshopper Warbler	<i>Locustella naevia</i>	Red, s41, HBAP, CR
Tree Sparrow	<i>Passer montanus</i>	Red, s41, HBAP, CR
Scaup	<i>Aythya marila</i>	Red, s41, s1p1
Common Scoter	<i>Melanitta nigra</i>	Red, s41, s1p1, HBAP
Short-eared Owl	<i>Asio flammeus</i>	Ann1
Ferruginous Duck	<i>Aythya nyroca</i>	Ann1
Glossy Ibis	<i>Plegadis falcinellus</i>	Ann1
Barnacle Goose	<i>Branta leucopsis</i>	Ann1
Arctic Tern	<i>Sterna paradisaea</i>	Ann1
Tawny Pipit	<i>Anthus campestris</i>	Ann1
Ruddy Shelduck	<i>Tadorna ferruginea</i>	Ann1
Smew	<i>Mergellus albellus</i>	Ann1
Red-breasted Goose	<i>Branta ruficollis</i>	Ann1
White Stork	<i>Ciconia ciconia</i>	Ann1
Eurasian Eagle Owl	<i>Bubo bubo</i>	Ann1
Crane	<i>Grus grus</i>	Ann1
Common Tern	<i>Sterna hirundo</i>	Ann1, CR
Sandwich Tern	<i>Sterna sandvicensis</i>	Ann1, CR
Bar-tailed Godwit	<i>Limosa lapponica</i>	Ann1, HBAP
Golden Plover	<i>Pluvialis apricaria</i>	Ann1, HBAP
Little Egret	<i>Egretta garzetta</i>	Ann1, HBAP, CR
Kingfisher	<i>Alcedo atthis</i>	Ann1, s1p1
Great Northern Diver	<i>Gavia immer</i>	Ann1, s1p1
Red-throated Diver	<i>Gavia stellata</i>	Ann1, s1p1
Little Gull	<i>Hydrocoloeus minutus</i>	Ann1, s1p1
Osprey	<i>Pandion haliaetus</i>	Ann1, s1p1
Black-throated Diver	<i>Gavia arctica</i>	Ann1, s1p1
Black Tern	<i>Chlidonias niger</i>	Ann1, s1p1
Spoonbill	<i>Platalea leucorodia</i>	Ann1, s1p1
Spotted Crake	<i>Porzana porzana</i>	Ann1, s1p1
Leach's Petrel	<i>Oceanodroma leucorhoa</i>	Ann1, s1p1
Wood Sandpiper	<i>Tringa glareola</i>	Ann1, s1p1

Common name	Taxonomic name	Status
Peregrine	Falco peregrinus	Ann1, s1p1, CR
Marsh Harrier	Circus aeruginosus	Ann1, s1p1, CR
Avocet	Recurvirostra avosetta	Ann1, s1p1, CR
Slavonian Grebe	Podiceps auritus	Ann1, s1p1, HBAP
Dartford Warbler	Sylvia undata	Ann1, s1p1, HBAP, CI
Mediterranean Gull	Larus melanocephalus	Ann1, s1p1, HBAP, CR
Little Tern	Sternula albifrons	Ann1, s1p1, HBAP, CR
Red Kite	Milvus milvus	Ann1, s1p1, HBAP, CR
Honey-buzzard	Pernis apivorus	Ann1, s1p1, HBAP, CR
Woodlark	Lullula arborea	Ann1, s41, s1p1, HBAP, CI
Stone-curlew	Burhinus oedicephalus	Ann1, s41, s1p1, HBAP, CS
Ruff	Calidris pugnax	Ann1, Red, s1p1
Red-backed Shrike	Lanius collurio	Ann1, Red, s1p1
Merlin	Falco columbarius	Ann1, Red, s1p1, HBAP
Hen Harrier	Circus cyaneus	Ann1, Red, s41, s1p1, HBAP
Roseate Tern	Sterna dougallii	Ann1, Red, s41, s1p1, HBAP, CR
Higher plants - Flowering Plants		
Glasswort	Salicornia pusilla x ramosissima	CR
Foxtail	Alopecurus pratensis x geniculatus = A. x brachystylus	CR
Flixweed	Descurainia sophia	CR
Brookweed	Samolus valerandi	CS
Wild Celery	Apium graveolens	CS
Sea Sandwort	Honckenia peploides	CS
Blunt-flowered Rush	Juncus subnodulosus	CS
Long-bracted Sedge	Carex extensa	CS
Common Glasswort	Salicornia europaea	CS
Purple Glasswort	Salicornia ramosissima	CS
English Scurvygrass	Cochlearia anglica	CS
Long-spiked Glasswort	Salicornia dolichostachya	CS
Sea Pearlwort	Sagina maritima	CS
Bur Chervil	Anthriscus caucalis	CS
Townsend's Cord- grass	Spartina maritima x alterniflora = S. x townsendii	CS
Knotted Hedge- parsley	Torilis nodosa	CS
Slender Thistle	Carduus tenuiflorus	CS
Frog Rush	Juncus ambiguus	CS
Curled Dock	Rumex crispus subsp. littoreus	CS
Frosted Orache	Atriplex laciniata	CS

Common name	Taxonomic name	Status
Brackish Water- crowfoot	Ranunculus baudotii	CS
Ivy Broomrape	Orobanche hederæ	CS
Sea Radish	Raphanus raphanistrum subsp. maritimus	CS
Slender Spike-rush	Eleocharis uniglumis	CS
Dwarf Elder	Sambucus ebulus	CS
Narrow-leaved Pepperwort	Lepidium ruderales	CS
Spring Vetch	Vicia lathyroides	CS
Summer Snowflake	Leucojum aestivum subsp. pulchellum	HBAP
Stream Water-crowfoot	Ranunculus penicillatus	HBAP
Stream Water-Crowfoot	Ranunculus penicillatus subsp. pseudofluitans	HBAP, CS
Cornflower	Centaurea cyanus	s41, HBAP
Hairy Vetchling	Lathyrus hirsutus	NR
Little-robin	Geranium purpureum	NR, NS, HBAP, CR
Clustered Clover	Trifolium glomeratum	NS
Welsh Poppy	Meconopsis cambrica	NS
Early Meadow-grass	Poa infirma	NS
Toothed Medick	Medicago polymorpha	NS, CS
Yellow Glasswort	Salicornia fragilis	NS, CS
Lax-flowered Sea- lavender	Limonium humile	NS, CS
Perennial Glasswort	Sarcocornia perennis	NS, CS
Sea Clover	Trifolium squamosum	NS, HBAP, CR,
Golden-samphire	Inula crithmoides	NS, HBAP, CS
Curved Hard-grass	Parapholis incurva	NS, HBAP, CS
One-flowered Glasswort	Salicornia pusilla	NS, HBAP, CS
Stiff Saltmarsh-grass	Puccinellia rupestris	NS, HBAP, CS
Blue Pimpernel	Anagallis arvensis subsp. foemina	IUCN_EN_2014:DD, NS, CR
Small Cord-grass	Spartina maritima	IUCN_EN_2014:EN, IUCN_GB_2001:EN, NS, s41, CR
Spreading Hedge- parsley	Torilis arvensis	IUCN_EN_2014:EN, IUCN_GB_2001:EN, NS, s41, HBAP, CS
Crosswort	Cruciata laevipes	IUCN_EN_2014:NT
Ragged-Robin	Silene flos-cuculi	IUCN_EN_2014:NT
Marsh Ragwort	Senecio aquaticus	IUCN_EN_2014:NT
Marsh Arrowgrass	Triglochin palustre	IUCN_EN_2014:NT
Quaking-grass	Briza media	IUCN_EN_2014:NT
Common Sea- lavender	Limonium vulgare	IUCN_EN_2014:NT
Marsh Valerian	Valeriana dioica	IUCN_EN_2014:NT
Eyebright	Euphrasia nemorosa	IUCN_EN_2014:NT
Heath Speedwell	Veronica officinalis	IUCN_EN_2014:NT

Common name	Taxonomic name	Status
Devil's-bit Scabious	<i>Succisa pratensis</i>	IUCN_EN_2014:NT
Corn Mint	<i>Mentha arvensis</i>	IUCN_EN_2014:NT
Wild Strawberry	<i>Fragaria vesca</i>	IUCN_EN_2014:NT
Common Valerian	<i>Valeriana officinalis</i>	IUCN_EN_2014:NT
Field Scabious	<i>Knautia arvensis</i>	IUCN_EN_2014:NT
Parsley Water- dropwort	<i>Oenanthe lachenalii</i>	IUCN_EN_2014:NT, CS
Spiny Restharrow	<i>Ononis spinosa</i>	IUCN_EN_2014:NT, CS
Sea Wormwood	<i>Seriphidium maritimum</i>	IUCN_EN_2014:NT, CS
Yellow Horned- poppy	<i>Glaucium flavum</i>	IUCN_EN_2014:NT, CS
Treacle-mustard	<i>Erysimum cheiranthoides</i>	IUCN_EN_2014:NT, CS
Hound's-tongue	<i>Cynoglossum officinale</i>	IUCN_EN_2014:NT, IUCN_GB_2001:NT
Field Woundwort	<i>Stachys arvensis</i>	IUCN_EN_2014:NT, IUCN_GB_2001:NT
Borrer's Saltmarsh- grass	<i>Puccinellia fasciculata</i>	IUCN_EN_2014:NT, IUCN_GB_2001:VU, NS, s41, HBAP, CS
Strawberry Clover	<i>Trifolium fragiferum</i>	IUCN_EN_2014:VU
Lesser Spearwort	<i>Ranunculus flammula</i>	IUCN_EN_2014:VU
Chicory	<i>Cichorium intybus</i>	IUCN_EN_2014:VU
Eelgrass	<i>Zostera (Zostera) marina</i>	IUCN_EN_2014:VU, IUCN_GB_2001:NT, HBAP, CS
Maiden Pink	<i>Dianthus deltoides</i>	IUCN_EN_2014:VU, IUCN_GB_2001:NT, NS, CR
Corn Spurrey	<i>Spergula arvensis</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU
Corn Marigold	<i>Glebionis segetum</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU
Weasel's-snout	<i>Misopates orontium</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU
Stinking Chamomile	<i>Anthemis cotula</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU, CI
Opposite-leaved Pondweed	<i>Groenlandia densa</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU, CR
Mousetail	<i>Myosurus minimus</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU, CS
Dwarf Eelgrass	<i>Zostera (Zosterella) noltei</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU, NS, HBAP, CS
Wall Bedstraw	<i>Galium parisiense</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU, NS, HBAP, CS
Slender Hare's-ear	<i>Bupleurum tenuissimum</i>	IUCN_EN_2014:VU, IUCN_GB_2001:VU, NS, s41, HBAP, CS
Divided Sedge	<i>Carex divisa</i>	IUCN_GB_2001:VU, NS, s41, HBAP

Common name	Taxonomic name	Status
Invertebrates - Coleoptera		
Notiophilus quadripunctatus	Notiophilus quadripunctatus	NS
Stag Beetle	Lucanus cervus	Ann2np, NS, s41, HBAP
Goniglossum wiedemanni	Goniglossum wiedemanni	NN
Flecked General	Stratiomys singularior	NN
Banded General	Stratiomys potamida	NN
Dotted Bee-fly	Bombylius discolor	NN, HBAP
Striped Horsefly	Hybomitra expollicata	IUCN_GB_pre94:VU, HBAP
Long-horned General	Stratiomys longicornis	IUCN_GB_pre94:VU, HBAP
Invertebrates - Hemiptera		
Box Bug	Gonocerus acuteangulatus	IUCN_GB_pre94:EN
Invertebrates - Hymenoptera		
Red-shanked Carder-bee	Bombus (Thoracobombus) ruderarius	s41
Brown-banded Carder-bee	Bombus (Thoracobombus) humilis	s41, HBAP
Hawksbeard Mining Bee	Andrena fulvago (Chrysandrena)	NS
Big-headed Mining Bee	Andrena bucephala (Hoplandrena)	NS
Lobe-spurred Furrow Bee	Lasioglossum (Evylaeus) pauxillum	NS
Sharp-collared Furrow Bee	Lasioglossum (Evylaeus) malachurum	NS
Silvery Leafcutter Bee	Megachile leachella (Eutricharaea)	NS
Painted Nomad Bee	Nomada fucata	NS
Blunthorn Nomad Bee	Nomada flavopicta	NS
Dolichovespula (Dolichovespula) media	Dolichovespula (Dolichovespula) media	NS
Little Yellow-face Bee	Hylaeus pictipes (Paraprosopis)	NS
Trimmer's Mining Bee	Andrena trimmerana (Hoplandrena)	NS
Nysson trimaculatus	Nysson trimaculatus	NS
Chrysura radians	Chrysura radians	NS
Red-girdled Mining Bee	Andrena labiate (Poecilandrena)	NS
Four-banded Flower Bee	Anthophora (Dasymegilla) quadrimaculata	NS
Red-tailed (Hill) Cuckoo Bee	Bombus rupestris (Psithyrus)	NS, HBAP
Large Garden (Ruderal) Bumblebee	Bombus ruderatus (Megabombus)	NS, s41, HBAP
Dolichovespula (Pseudovespula) saxonica	Dolichovespula (Pseudovespula) saxonica	IUCN_GB_pre94:IK
Ridge-saddled Carpenter Bee	Heriades truncorum	IUCN_GB_pre94:IK
Shingle Yellow-face Bee	Hylaeus annularis (Lamdopsis)	IUCN_GB_pre94:R
White-footed Furrow Bee	Lasioglossum (Dialictus) leucopus	IUCN_GB_pre94:R

Common name	Taxonomic name	Status
Bryony Mining Bee	Andrena florea (Poliandrena)	IUCN_GB_pre94:R
Rough-backed Blood Bee	Sphecodes scabricollis	IUCN_GB_pre94:R
Gorytes laticinctus	Gorytes laticinctus	IUCN_GB_pre94:R
Invertebrates - Lepidoptera		
Fleabane Smudge	Digitivalva pulicariae	CR
Four-spotted Footman	Lithosia quadra	CR
Tree-lichen Beauty	Cryphia algae	CR
Scarce Water- veneer	Donacula mucronella	CR
Silver Hook	Deltote uncula	CR
Sea-purslane Case- bearer	Coleophora salinella	CR
Saltmarsh Case- bearer	Coleophora atriplicis	CR
Glasswort Case- bearer	Coleophora salicorniae	CR
Silver-streaked Case-bearer	Coleophora limoniella	CR
Small Clouded Knot- horn	Phycitodes saxicola	CR
Saltern Dwarf	Elachista scirpi	CR
Knapweed Bell	Epiblema cirsiaria	CR
Small Saltern Conch	Gynnidomorpha vectisana	CR
Saltmarsh Bell	Eucosma tripoliana	CR
Dowdy Plume	Stenoptilia zophodactylus	CR
Black-dotted Groundling	Stenolechia gemmella	CR
Dark Smudge	Ypsolopha horridella	CR
Saltmarsh Plume	Agdistis bennetii	CR
Reddish Light Arches	Apamea sublustis	CS
Dark Spectacle	Abrostola triplasia	CS
Gold Spot	Plusia festucae	CS
Feathered Ranunculus	Polymixis lichenea	CS
Orange Sallow	Tiliacea citrigo	CS
Dog's Tooth	Lacanobia suasa	CS
Least Carpet	Idaea rusticata subsp. atrosignaria	CS
Twin-spotted Wainscot	Lenisa geminipuncta	CS
Mallow	Larentia clavaria	CS
White Satin Moth	Leucoma salicis	CS
Netted Pug	Eupithecia venosata	CS
Poplar Kitten	Furcula bifida	CS
Tawny Shears	Hadena perplexa	CS
Ox-tongue Conch	Cochylis molliculana	CS
Barred Rivulet	Perizoma bifaciata	CS
New Marsh Cosmet	Cosmopterix scribaiella	CS
Yellow Belle	Aspitates ochrearia	CS
Festoon	Apoda limacodes	HBAP
Mathew's Wainscot	Mythimna favicolor	HBAP
Buttoned Snout	Hypena rostralis	HBAP

Common name	Taxonomic name	Status
Orange Footman	<i>Eilema sororcula</i>	HBAP
Silver-washed Fritillary	<i>Argynnis paphia</i>	HBAP, CI
Buff Ermine	<i>Spilosoma lutea</i>	s41
Green-brindled Crescent	<i>Allophyas oxyacanthae</i>	s41
Deep-brown Dart	<i>Aporophyla lutulenta</i>	s41
Centre-barred Sallow	<i>Atethmia centrargo</i>	s41
Garden Tiger	<i>Arctia caja</i>	s41
Powdered Quaker	<i>Orthosia gracilis</i>	s41
Large Wainscot	<i>Rhizedra lutosa</i>	s41
Feathered Gothic	<i>Tholera decimalis</i>	s41
Ghost Moth	<i>Hepialus humuli</i>	s41
Sallow	<i>Cirrhia icteritia</i>	s41
Dusky Thorn	<i>Ennomos fuscantaria</i>	s41
August Thorn	<i>Ennomos quercinaria</i>	s41
Grey Dagger	<i>Acronicta psi</i>	s41
Dark-barred Twin-spot Carpet	<i>Xanthorhoe ferrugata</i>	s41
Lackey	<i>Malacosoma neustria</i>	s41
Cinnabar	<i>Tyria jacobaeae</i>	s41
Rosy Rustic	<i>Hydraecia micacea</i>	s41
Large Gold Case-bearer	<i>Coleophora vibicella</i>	s41
Knot Grass	<i>Acronicta rumicis</i>	s41
Oak Hook-tip	<i>Watsonalla binaria</i>	s41
Blood-vein	<i>Timandra comae</i>	s41
Small Square-spot	<i>Diarsia rubi</i>	s41
Shoulder-striped Wainscot	<i>Leucania comma</i>	s41
Mullein Wave	<i>Scopula marginepunctata</i>	s41
White Ermine	<i>Spilosoma lubricipeda</i>	s41
Shaded Broad-bar	<i>Scotopteryx chenopodiata</i>	s41
Dusky-lemon Sallow	<i>Cirrhia gilvago</i>	s41, CR
Hedge Rustic	<i>Tholera cespitis</i>	s41, CS
Crescent	<i>Helotropha leucostigma</i>	s41, CS
Galium Carpet	<i>Epirrhoe galiata</i>	s41, CS
Heath Rustic	<i>Xestia agathina</i>	s41, CS
Sulphur Pearl	<i>Sitochroa palealis</i>	NN
Greenweed Groundling	<i>Mirificarma lentiginosella</i>	NN
Coast Neb	<i>Monochroa moyses</i>	NN
Beet Moth	<i>Scrobipalpa ocellatella</i>	NN
Bulrush Veneer	<i>Calamotropha paludella</i>	NS
Spindle Knot-horn	<i>Nephoterix angustella</i>	NS
Marbled Yellow Pearl	<i>Evergestis extimalis</i>	NS
Wainscot Neb	<i>Monochroa palustrellus</i>	NS
Small Heath	<i>Coenonympha pamphilus</i>	IUCN_GB_2001:NT, s41
Wall	<i>Lasiommata megera</i>	IUCN_GB_2001:NT, s41,

Common name	Taxonomic name	Status
		CS
Grayling	Hipparchia semele	IUCN_GB_2001:VU, s41
Flame Brocade	Trigonophora flammea	IUCN_GB_pre94:EX
Jersey Tiger	Euplagia quadripunctaria	Ann2np
Mammals - Marine		
Grey Seal	Halichoerus grypus	Ann2np
Common Seal	Phoca vitulina	Ann2np, s41
Mammals - Terrestrial (bats)		
Nathusius's Pipistrelle	Pipistrellus nathusii	Ann4, Sch2, s5s94b, s5s94c
Whiskered Bat	Myotis mystacinus	Ann4, Sch2, s5s94b, s5s94c
Natterer's Bat	Myotis nattereri	Ann4, Sch2, s5s94b, s5s94c
Daubenton's Bat	Myotis daubentonii	Ann4, Sch2, s5s94b, s5s94c
Lesser Noctule	Nyctalus leisleri	Ann4, Sch2, s5s94b, s5s94c
Serotine	Eptesicus serotinus	Ann4, Sch2, s5s94b, s5s94c, HBAP
Pipistrelle	Pipistrellus pipistrellus	Ann4, Sch2, s5s94b, s5s94c, HBAP
Soprano Pipistrelle	Pipistrellus pygmaeus	Ann4, Sch2, s41, s5s94b, s5s94c
Noctule Bat	Nyctalus noctula	Ann4, Sch2, s41, s5s94b, s5s94c
Brown Long-eared Bat	Plecotus auritus	Ann4, Sch2, s41, s5s94b, s5s94c
Mammals – Terrestrial (non- bats)		
Yellow-necked Mouse	Apodemus flavicollis	HBAP, CS
West European Hedgehog	Erinaceus europaeus	s41
European Water Vole	Arvicola amphibius	s41, s5s94a, s5s94b, HBAP, CI

Notable species list from HBIC data within 2km of scheme

Status key:

<u>Status code</u>	<u>Status</u>
Ann1	Birds Directive Annex I species
Ann2np	Habitats Directive Annex II species
Ann4	Habitats Directive Annex IV species
Sch2	Habitats Regulations 2010 Schedule II species
IUCN_EN_2014:VU	Vulnerable species - 2014 IUCN Red List Categories and Criteria
IUCN_EN_2014:NT	Near Threatened species - 2014 IUCN Red List Categories and Criteria
IUCN_EN_2014:EN	Endangered species - 2014 IUCN Red List Categories and Criteria
IUCN_GB_2001:VU	Vulnerable species - 2001 IUCN Red List Categories and Criteria
IUCN_GB_2001:NT	Near Threatened species - 2001 IUCN Red List Categories and Criteria
IUCN_GB_2001:EN	Endangered species - 2001 IUCN Red List Categories and Criteria
IUCN_GB_pre94:VU	Vulnerable species - 1994 Red List Categories and Criteria
IUCN_GB_pre94:EN	Endangered species - 1994 Red List Categories and Criteria
IUCN_GB_pre94:IK	??Unknown classification - 1994 Red List Categories and Criteria
IUCN_GB_pre94:R	??Unknown classification - 1994 Red List Categories and Criteria
IUCN_GB_pre94:EX	Extinct species - 1994 Red List Categories and Criteria
Red	Birds of Conservation Concern 4: the Red List for Birds
NN	Nationally notable - National species status
NS	Nationally scarce - National species status
NR	Nationally rare - National species status
S41	Natural Environment and Rural Communities (NERC) Act 2006 Section 41 list species
s1p1	Schedule 1 - Wildlife and Countryside Act 1981
s5s91t	Schedule 5 - Wildlife and Countryside Act 1981
s5s94a	Schedule 5 - Wildlife and Countryside Act 1981
s5s94b	Schedule 5 - Wildlife and Countryside Act 1981
s5s94c	Schedule 5 - Wildlife and Countryside Act 1981
HBAP	Hampshire Biodiversity Action Plan 1998 species
CI	County important - Locally (Hampshire) determined species status
CR	County rare - Locally (Hampshire) determined species status
CS	County scarce - Locally (Hampshire) determined species status

Status key for Notable species list from HBIC data within 2km of scheme (data Jan 2018)

Annex C: Non-native invasive species

Common name	Taxonomic name	Status
Birds		
Canada Goose	Branta canadensis	WaCA9_1
Ruddy Shelduck	Tadorna ferruginea	WaCA9_1, B, Watch List
Barnacle Goose	Branta leucopsis	WaCA9_1, B, Watch List
Ruddy Duck	Oxyura jamaicensis	WaCA9_1
Cattle Egret	Bubulcus ibis	B, Watch List
Rose-ringed Parakeet (Ring-necked Parakeet)	Psittacula krameri	WaCA9_1
Mandarin Duck	Aix galericulata	WaCA9_1
Red-crested Pochard	Netta rufina	WaCA9_1, B, Watch List
Lady Amherst's Pheasant	Chrysolophus amherstiae	WaCA9_1
Carolina Wood Duck	Aix sponsa	WaCA9_1
Higher plants - Flowering Plants		
Japanese rose	Rosa rugosa	WaCA9_2
Virginia-creeper	Parthenocissus quinquefolia	WaCA9_2
Japanese Knotweed	Fallopia japonica	WaCA9_2
Rhododendron	Rhododendron ponticum	WaCA9_2
Montbretia	Crocasmia x crocosmifolia	WaCA9_2
Mammals - Terrestrial		
Grey Squirrel	Sciurus carolinensis	WaCA9_1

Non-native invasive species list from HBIC data within 2km (data January 2018)

Status Key:

B, Watch List: Species is listed in 'Natural England - Horizon scanning for new invasive non-native animal species in England'

<http://publications.naturalengland.org.uk/publication/43005>.

WaCA9_1: Species is listed in the Wildlife and Countryside Act Schedule 9 Part 1

WaCA9_2: Species is listed in the Wildlife and Countryside Act Schedule 9 Part 2

Annex D: Solent Waders and Brent Goose Strategy sites

Site code	Designation	Distance and direction	Area (ha)	Classification
H126	SW&BGS 2017	300m (north east)	0.15	Low Use
H25D	SW&BGS 2017	400m (north east)	2.45	Low Use
H27	SW&BGS 2017	450m (north west)	3.8	Secondary Support Area
H28C	SW&BGS 2017	450m (west)	9.02	SPA site
H25C	SW&BGS 2017	500m (north east)	5.85	Primary Support Area
H76	SW&BGS 2017	600m (south east)	1.81	SPA site
H28B	SW&BGS 2017	650m (north west)	2.09	SPA site
H86	SW&BGS 2017	700m (south)	2.29	Secondary Support Area
H25B	SW&BGS 2017	750m (north east)	7.87	Primary Support Area
H60B	SW&BGS 2017	750m (south east)	3.19	Secondary Support Area
H62A	SW&BGS 2017	750m (south)	4.74	Low Use
H28A	SW&BGS 2017	800m (west)	6.87	Secondary Support Area
H24C	SW&BGS 2017	800m (north east)	2.25	Primary Support Area
H60I	SW&BGS 2017	800m (south)	2.33	Core Area
H62B	SW&BGS 2017	800m (south)	3.89	Low Use
H24D	SW&BGS 2017	850m (north east)	2.67	Primary Support Area
H60J	SW&BGS 2017	850m (south east)	3.36	Primary Support Area
H73B	SW&BGS 2017	850m (south)	1.82	SPA site
H92	SW&BGS 2017	900m (east)	1.26	SPA site
H24E	SW&BGS 2017	950m (north east)	2.61	Primary Support Area
H73A	SW&BGS 2017	950m (south)	0.15	SPA site
H24A	SW&BGS 2017	1,000m (north east)	4.71	Primary Support Area
H63	SW&BGS 2017	1,000m (south east)	3.04	Secondary Support Area
H61	SW&BGS 2017	1,000m (south)	4.24	SPA site

Solent Waders and Brent Goose Strategy 2017 sites within 1km of the site