



Land at Hulbert Road

Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2



**For Trustees of the GHM Jackson 1972
Settlement**

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Glossary

AADT	Annual Average Daily Traffic
ALSE	Assessment of Likely Significant Effects
CEMP	Construction Environment Management Plan
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
CJEU	Court of Justice of the European Union
EFT	Emission Factor Toolkit
Habitats Regulations	Conservation of Habitats and Species Regulations 2017
HRA	Habitats Regulations Assessment
IAQM	Institute for Air Quality Management
IROI	Imperative Reasons of Over-riding Public Interest
LSE	Likely Significant Effect
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NO _x	Nitrogen Oxides
PfSH	Partnership for South Hampshire; formerly known as PUSH (Partnership for Urban South Hampshire)
PUSH	Partnership for Urban South Hampshire
PVSB	Perennial Vegetation of Stony Banks
SAC	Special Area of Conservation
SANG	Suitable Alternative Natural Greenspace
SPA	Special Protection Area
SWBGS	Solent Waders and Brent Goose Strategy
TEMPO	Trip End Model Presentation Program
TN	Total Nitrogen
WwTW	Wastewater Treatment Works

Executive Summary

Contents	Summary
Site Location	The site is located to the west of the B2150 (Hulbert Road) on the western outskirts of Havant, Hampshire and is centred at Ordnance Survey National Grid Reference: SU 69445 08150.
Proposals	The proposals currently include the construction of up to 120 residential units with associated landscaping and access.
Scope of this Assessment	This report assesses the pathways to LSE (HRA Stage 1) of the proposed development upon relevant designated Natura 2000 sites and subsequently assesses the significance of effects upon the integrity of such designated Natura 2000 sites (HRA Stage 2). This is a submission to inform the Competent Authority's (Havant Borough Council) HRA.
Results of Stage 1: Screening	The results from the Stage 1 Screening Assessment found three pathways to likely significant effects (LSE). These were: • Recreational disturbance during occupation: Alone and In-combination; • Nutrient outputs during occupation: Alone and In-combination; and • Changes in air quality: Alone and In-combination. It was possible to screen out air quality changes at Stage 1, but recreational disturbance and nutrient outputs were taken forward to Stage 2: Appropriate Assessment.
Results of Stage 2: Appropriate Assessment	The results from the Stage 2 Appropriate Assessment found that with mitigation, the pathways identified at Stage 1 do not have the potential to affect the integrity of any European designated site for nature conservation. In summary the mitigation comprised: • Recreational use during occupation: Alone and In-combination – Financial contribution to the Solent Recreation Mitigation Strategy; and • Nutrient outputs during occupation: Alone and In-combination – Grampian condition requiring the development to achieve nitrogen-neutrality prior to occupation through payment into the Havant Borough Council nutrient mitigation scheme, or offsetting by removing land from agricultural use.
Conclusion	The 'Competent Authority', is considered not to require further assessment under the Habitats Regulations, and the proposed development can proceed without Stage 3 and Stage 4 being completed.

1.0 Introduction

1.1 Background

WYG was commissioned by Trustees of the GHM Jackson 1972 Settlement in February 2020, to prepare a report to inform Stage 1: Screening and Stage 2: Appropriate Assessment of a Habitats Regulations Assessment (HRA). The report was required in relation to the development proposals which comprise of residential units with associated landscaping and access.

This report has been prepared by WYG Principal Ecologist Jonathan Jackson CEnv MCIEEM. The conditions pertinent to the report are provided in Appendix A.

1.2 Site Location

The site is located to between the A3 dual carriageway and the B2150 Hulbert Road approximately 0.4 km west of Havant and is centred at Ordnance Survey National Grid Reference: SU 69445 08150.

The site is shown in Figure 1 and comprises a field of semi-improved grassland with scattered scrub. Areas of dense scrub and tall ruderal vegetation are present around the edge of the grassland, the south west corner of the site is dominated by an area of hardstanding that is surrounded by a ditch that is partially filled with water. The site is adjacent to areas of broadleaved and mixed woodland to the north and south and scrub / trees to its east and west.

1.3 Development Proposals

The proposals comprise:

"Outline planning application with all matters reserved apart from access, for up to 120 dwellings with associated improved access, landscaping, drainage infrastructure and other associated works on land west of Hulbert Road, Havant."

A draft masterplan showing the development proposals is provided in Appendix B.

1.4 Requirements for the HRA

The requirement for an HRA is established through Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, hereby referred to as the 'Habitats Directive', in Articles 6(3) and 6(4). The Habitats Directive is transposed into national legislation by the Conservation of Habitats and Species Regulations 2017. These are hereafter referred to as the 'Habitats Regulations'.

Under Regulation 63, any project which is likely to have a significant effect on a European site (either alone or in-combination with other projects) and is not directly connected with, or necessary for the management of the site, must be subject to an HRA to determine the implications for the site in view of its conservation objectives. This is determined during the Stage 1: Screening Assessment of an HRA (see below).

A Stage 2: Appropriate Assessment then needs to be carried out in respect of any plan or project which:

- either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the European network; and
- is not directly connected with the management of the site for nature conservation.

The term European site is defined fully in Regulation 8 of the Habitats Regulations and includes:

- Special Areas of Conservation (SACs);
- candidate and proposed SACs;
- Special Protection Areas (SPAs);
- potential SPAs;
- proposed Wetlands of International Importance designated or proposed for their wetland features under the auspices of the Convention of Wetlands of International Importance (commonly referred to as 'Ramsar sites'); and
- sites identified for Natura 2000 compensatory measures.

The final two categories are afforded the same level of protection as SACs and SPAs as a matter of Government policy, and the assessment provisions of the Habitats Regulations are applied to them (Natural England, 2017).

2.0 Assessment Methodology

2.1 Assessment Guidance

The Habitats Directive and Regulations do not specify how assessment should be undertaken. In undertaking this HRA, the process we have adopted is that recommended in official EC guidance (EC, 2001). In this report, our Stage 1: Screening found that LSE were possible and so a Stage 2: Appropriate Assessment was required. These two stages form the first of four HRA stages, as described below:

- **Stage 1: Screening** – the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. This is also known as an 'assessment of likely significant affects (ALSE)';
- **Stage 2: Appropriate assessment** – the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in-combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts (in accordance with guidance following the recent decision by the CJEU; People Over Wind and Sweetman v Coillte Teoranta (C-323/17) regarding application of embedded mitigation at Stage 1 or Stage 2 of an HRA (Freeths, 2018);
- **Stage 3: Assessment of alternative solutions** – the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and



- **Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain** – an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Over-riding Public Interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of IROPI).

The Stage 1 Screening Assessment comprises four steps, as described below:

- **Step 1.** Determining whether the project or plan is directly connected with or necessary to the management of the Natura 2000 site(s);
- **Step 2.** Describing the project or plan and the description and characterisation of other projects or plans that in-combination have the potential for having significant effects on the Natura 2000 site(s);
- **Step 3.** Identifying the potential effects on the Natura 2000 site(s); and
- **Step 4.** Assessing the significance of any effects on the Natura 2000 site(s).

The Stage 2: Appropriate Assessment should identify the effects of those plans or projects on qualifying features of the European sites in relation to the Conservation Objectives of those sites and determine whether these effects will result in an adverse effect on the integrity of the designated site. Only where the decision maker (the Competent Authority – in this case Havant Borough Council), is satisfied that there will be no adverse effect on integrity, or where there are imperative reasons of overriding public interest, can the plan or project be approved.

3.0 Stage 1: Screening

Projects may have spatial implications which can have further reaching effects than those predicted to fall within the development footprint. Specifically, it is recognised that the distance between a proposed development and a designated site is not a definitive determinant as to the likelihood or severity of an impact occurring. Site variables such as prevailing wind conditions, surface and groundwater flow direction will all have an influence on the relative distance at which an impact can occur.

Additionally, the mobile nature of qualifying interest bird species must also be considered, since an adverse effect on the qualifying species of a site, even if they are not present within the site for which they are a qualifying feature, may still result in a significant adverse impact upon a site.

3.1 Step 1 – Determining whether the development proposals are directly connected with or necessary to the management of the internationally designated site(s)

The development proposals are not connected with and are not necessary for the management of any internationally designated sites, although they do have the potential to affect them.

3.2 Step 2 – Identification of Internationally Designated Sites that may be Affected and Approach taken to identifying Other Plans or Projects that could lead to In-combination Effects

3.2.1 List of the Internationally Designated Sites that may be Affected by the Development Proposals

The *Habitats Regulations Assessment for the Havant Borough Local Plan* (Urban Edge Environmental Consulting, 2017) was the primary source used to identify internationally designated sites that may be affected by the proposals. This report screened the following sites, as shown in Figure 2 (the qualifying features of these sites is provided in Appendix C). These comprise:

- Butser Hill SAC;
- Solent and Isle of Wight Lagoons SAC;
- The New Forest Ramsar
- The New Forest SAC,
- The New Forest SPA;
- Portsmouth Harbour SPA;
- Portsmouth Harbour Ramsar;
- Solent and Southampton Water SPA;
- Solent and Southampton Water Ramsar;
- Chichester and Langstone Harbours SPA;
- Chichester and Langstone Harbours Ramsar;
- Solent Maritime SAC;
- Kingley Vale SAC;
- Solent and Dorset Coast SPA; and
- Pagham Harbour SPA.

3.2.2 Approach taken to identifying Other Plans or Projects that could lead to In-combination Effects

Establishing whether project level effects can act in-combination is dependent on whether the effect is still possible following the application of mitigation. For example, a drainage strategy may completely eliminate the potential for surface water run-off from affecting any nearby watercourses, in which case it cannot contribute to any effect in-combination. Alternatively, there may be mitigation strategies in place which are designed to eliminate the need to establish in-combination effects as they act cumulatively e.g. payments to strategic recreation mitigation strategies.

Where LSE have been identified which have the potential to act in-combination, these are discussed in the relevant sections below.

3.3 Step 3 – Identifying the Potential Effects on Internationally Designated site(s)

3.3.1 Recreational use during occupation: Alone and in-combination

The site is within 5.6 km of the Solent and Southampton Water SPA and Ramsar and the Portsmouth Harbour SPA and Ramsar. This means that the impacts arising from the development proposals due

to recreational pressure must be mitigated for in accordance with the Solent Recreation Mitigation Strategy (Bird Aware Solent, 2017). This strategy determined that all residential developments within 5.6 km had the potential to result in increased visitor pressure with subsequent disturbance impacts on qualifying bird species.

This is considered to apply both alone and in-combination. However, due to the proposed mitigation, it is not necessary to specifically identify all projects that could result in an increase in recreational pressure on Solent European designated sites included within the strategy (i.e. those within 5.6 km).

Recreational Use During Occupation: Alone and In-combination therefore been taken forward to Stage 2: Appropriate Assessment.

3.3.2 Nutrient outputs during occupation: Alone and in-combination

In June 2018, an Integrated Water Management Study for South Hampshire was published by the Partnership for Urban South Hampshire (PUSH) (2018). This identified that there is uncertainty in some locations as to whether there will be sufficient capacity to accommodate new housing growth, and the potential for adverse effects upon coastal European sites (including the Solent and Southampton Water SPA) as a result of nitrogen discharge.

Natural England have identified that there is the potential for nutrients arising from increased wastewater from residential development to affect the qualifying features of European designated sites in the Solent (Natural England, 2019).

This effect has been identified as having the potential to promote algae growth that can affect aquatic vegetation and increase turbidity thereby affecting foraging efficacy of fish-eating birds, and the availability of suitable vegetation for species such as dark-bellied brent geese *Branta bernicla bernicla*. These effects could ultimately impact all aspects of the functioning of European designated sites in an interconnected manner.

Included within this guidance, Natural England have provided a calculator for establishing the change in nutrient (nitrogen) levels in water arising from the site pre- and post-development. This includes calculating the change in nitrogen levels in surface water runoff as a result of a change in land use, and from wastewater that is discharged into the Solent via Wastewater Treatment Works (WwTW).

Wastewater from the development proposals will be treated at the Southern Water WwTW at Budds Farm, but ultimately water will discharge to the sea and may contribute to background nitrogen levels within the Solent. The development therefore has the potential to result in LSE on Solent SACs, SPAs and Ramsars due to direct and indirect effects of water pollution and therefore this pathway cannot be screened out at Stage 1. A Stage 2 Appropriate Assessment is therefore required.

This is considered to apply both alone and in-combination, but due to the proposed mitigation, it is not necessary to specifically identify all projects within the Solent catchment that could result in an increase in nutrient discharge into the Solent.

Nutrient Outputs During Occupation: Alone and In-combination therefore have been taken forward to Stage 2: Appropriate Assessment.

3.3.3 Changes in air quality during construction and operation: Alone and in-combination

The development proposals are more than 50 m from any European designated site for nature conservation. As a result, there is no potential for releases of fugitive dust to reach them during construction (see Figure 2). This is based on standard guidance from Institute for Air Quality Management (IAQM) recommending that 50 m is the maximum zone of influence for this effect to be significant (IAQM, 2014).

The Air Quality Assessment (AQA) for the development proposals (WYG, 2020) also does not identify that there are any European sites which form sensitive ecological features requiring assessment within 200 m of road affected by traffic generated by the development proposals. On this basis, operational impacts have also been screened out at Stage 1.

Changes in air quality during construction and operation: Alone and in-combination therefore have not been taken forward to Stage 2: Appropriate Assessment.

3.4 Step 4 – Assessing the significance of any effects on the Natura 2000 site(s)

The Stage 1: Screening Assessment found that there were two pathways to LSE that require appropriate assessment at Stage 2. These are summarised in Table 1.

Table 1: Summary of Stage 1: Screening

Pathway	Site	Stage 2 required
Nutrient outputs during occupation: Alone	All Solent European sites.	Yes
Nutrient outputs during occupation: In-combination	All Solent European sites.	Yes
Recreational use during occupation Alone	Portsmouth Harbour SPA and Ramsar Solent and Southampton Water SPA and Ramsar Chichester and Langstone Harbour SPA and Ramsar	Yes
Recreational use during occupation: In-combination	Portsmouth Harbour SPA and Ramsar Solent and Southampton Water SPA and Ramsar Chichester and Langstone Harbour SPA and Ramsar	Yes
Changes in air quality during construction: Alone	No European sites identified in the project AQA as requiring assessment.	No
Changes in air quality during construction: In-combination	No European sites identified in the project AQA as requiring assessment.	No
Changes in air quality during operation: Alone	No European sites identified in the project AQA as requiring assessment.	No
Changes in air quality during operation: In-combination	No European sites identified in the project AQA as requiring assessment.	No

It is therefore concluded that there are no pathways for LSE on the following European designated sites and they are not taken further in the HRA process:

- Butser Hill SAC;
- The New Forest Ramsar;
- The New Forest SAC,
- The New Forest SPA;
- Kingley Vale SAC;
- Solent and Dorset Coast SPA; and
- Pagham Harbour SPA.

4.0 Stage 2: Appropriate Assessment

The following sections discuss the pathway to LSE that could result in impacts on the integrity of the European sites identified during Stage 1: Screening.

4.1 Recreational use during occupation: Alone and In-combination

As discussed in Section **Error! Reference source not found.**, a per-unit financial contribution will be made in accordance with the Solent Recreation Mitigation Strategy (Bird Aware Solent, 2017). This will mitigate potential alone and in-combination recreational impacts upon the Solent SPAs. This will be calculated using the standard rates agreed by the LPA and secured within the Section 106 agreement.

With the application of this mitigation, no impact on the integrity of the Solent and Southampton Water SPA and Ramsar and Portsmouth Harbour SPA and Ramsar is predicted.

4.2 Nutrient outputs during occupation: Alone and in-combination

Due to the uncertainty over whether new development can be accommodated by existing wastewater treatment infrastructure without causing harm to coastal European sites, Natural England advise that all residential development should achieve nitrogen neutrality.

To make the assessment, Version 4 of Natural England's *Advice on Achieving Nutrient Neutrality for New Development in the Solent Region* for calculating nitrogen budgets was used (Natural England, 2020).

The assumptions used in this assessment are as follows:

- 110 litres of waste water will be generated per person per day;
- Wastewater will be treated at Budds Farm WwTW;
- Budds Farm has a discharge consent limit of 9.7 mg/l TN;
- The scheme comprises 120 dwellings;
- An occupancy rate of 2.4 people per dwelling as per Natural England guidance;
- The previous land-use of "Land not in agricultural production" has been applied to the whole site with associated leachate level of 5.0 Kg/TN/ha/yr. This is evidenced in the

habitats recorded during the surveys to inform the Ecological Appraisal for the site (WYG, 2019), as shown in Figure 3; and

- Post-construction the development will comprise 2.53 ha of urban land (with associated leachate level of 14.3 Kg/TN/ha/yr) and 2.18 ha of open space (5.0 kg/yr TN).

The full calculations are provided in Appendix D and are summarised in Table .

Table 2: Summary of nutrient balancing calculations

Option	Current Land Use TN Load (A)	Waste water from Future Land Use TN Load (B)	Future Land Use TN Load (C)	Change (B+C-A)	Apply 20% Buffer
120 units	23.550 Kg/TN/yr	77.820 Kg/TN/yr	47.079 Kg/TN/yr	101.349 Kg/TN/yr	121.619 Kg/TN/yr

The calculations show that with the inclusion of the 20% buffer the development would result in an increase in nitrogen load of 121.619 Kg/TN/yr and is therefore not nutrient neutral. Therefore, mitigation is required to achieve nutrient neutrality.

In order to secure mitigation, the applicant will accept that a Grampian Condition will be placed on planning consent for the development proposals. In line with the *European Sites avoidance and mitigation checklist* (Havant Borough Council, undated), this will require the applicant to ensure that the scheme will be nutrient neutral prior to occupation of any units. This will likely require a financial contribution to be made to a strategic solution which is in line with the Position statement prepared by the LPA (Havant Borough Council, undated). Alternatively, the nitrogen outputs could be offset through the removal of land from agricultural use in perpetuity (for example the conversion of 4.65 ha of cereal crop land to open space). The Applicant will also be exploring options to provide site specific mitigation and/or use Havant Borough Councils proposed mitigation land at Warblington Farm (draft Policy EX2 of the emerging local plan).

Provided the Grampian Condition is agreed to and then appropriately discharged with the application of mitigation agreed by the LPA, there will not be impact on the integrity of any Solent European designated site for nature conservation.

5.0 Summary

The Stage 2: Appropriate Assessment found that with the application of mitigation for all pathways to LSE during construction and operation, there would be no impact on the integrity of any European site.

As such, it is considered that the 'Competent Authority' can permit the proposed development and does not require Stage 3 or Stage 4 assessments to be undertaken, as described in Section 2.1.

6.0 References

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Figures

Figure 1: Site location plan

Figure 2: Location of European Designated Sites screened into this assessment

Figure 3: Pre-development habitats



Rev	Date	Notes
A	10/06/20	Initial map production

Legend

- Land included in nutrient calculations
- Broadleaved woodland - semi-natural
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Scrub - scattered
- SI Neutral grassland - semi-improved
- Bracken - continuous
- Tall ruderal
- Standing water
- Bare ground

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RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

0 10 20 40 Metres

Pre-development habitats

Hulbert Rd, Havant
Trustees of the GHM Jackson
1972 Settlement

Scale at A3:	Project No:	Drawing No:	Revision:
1:1,000	A096474	Figure 3	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	15/07/2020	Jonathan Jackson

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Appendix A: Report Conditions



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The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.



Appendix B: Draft Masterplan



NOTES
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REV	DESCRIPTION	DATE	AUTHOR	CHK'D
A	Masterplan updated	03/04/20	BA	-
B	Masterplan updated	09/04/20	BA	-
C	Annotations updated	09/04/20	BA	-
D	Title block updated	22/04/20	BA	-

KEY
Indicative Site Boundary



Urban & Landscape Design

Southampton Office
The Pavilion, Botleigh Grange Office Campus, Hedge End, Southampton, SO30 2AF
t: 02382 022 800 w: www.wyg.com

PROJECT
Hulbert Road
Havant
For: The Trustees of the GHM Jackson 1972 Settlement

DRAWING
Concept Masterplan - 01

SCALE 1:1000 @ A2 DATE 11/03/19 AUTHOR BA CHK'D CL

JOB NO. A096474 DRAWING NO. CMP-01 REV D



Appendix C: Qualifying Features of European Sites Screened into this Assessment



Butser Hill SAC (JNCC, 2015a)

Annex I habitats that are a primary reason for selection of this site

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)
- *Taxus baccata* woods of the British Isles

Solent and Isle of Wight Lagoons SAC (JNCC, 2015b)

Annex I habitats that are a primary reason for selection of this site

1150 Coastal lagoons * Priority feature

The Solent on the south coast of England encompasses a series of **Coastal lagoons**, including percolation, isolated and sluiced lagoons. The site includes a number of lagoons in the marshes in the Keyhaven – Pennington area, at Farlington Marshes in Chichester Harbour, behind the sea-wall at Bembridge Harbour and at Gilkicker, near Gosport. The lagoons show a range of salinities and substrates, ranging from soft mud to muddy sand with a high proportion of shingle, which support a diverse fauna including large populations of three notable species: the nationally rare foxtail stonewort *Lamprothamnium papulosum*, the nationally scarce lagoon sand shrimp *Gammarus insensibilis*, and the nationally scarce starlet sea anemone *Nematostella vectensis*. The lagoons in Keyhaven – Pennington Marshes are part of a network of ditches and ponds within the saltmarsh behind a sea-wall. Farlington Marshes is an isolated lagoon in marsh pasture that, although separated from the sea by a sea-wall, receives sea water during spring tides. The lagoon holds a well-developed low-medium salinity insect-dominated fauna. Gilkicker Lagoon is a sluiced lagoon with marked seasonal salinity fluctuation and supports a high species diversity. The lagoons at Bembridge Harbour have formed in a depression behind the sea-wall and sea water enters by percolation. Species diversity in these lagoons is high and the fauna includes very high densities of *N. vectensis*.

The New Forest Ramsar (JNCC, 1993)

There are three Ramsar criteria for which the Dorset Heathlands Ramsar is designated.

Ramsar criterion 1

Valley mires and wet heaths are found throughout the site and are of outstanding scientific interest. The mires and heaths are within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. This is the largest concentration of intact valley mires of their type in Britain.

Ramsar criterion 2

The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plant are found on the site, as are at least 65 British Red Data Book species of invertebrate.

Ramsar criterion 3

The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scarce wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England.

The New Forest SAC (JNCC, 2015c)

There are 11 Annex I habitats present that are a primary reason for selection of this site:

- **3110** Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*);
- **3130** Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*;
- **4010** Northern Atlantic wet heaths with *Erica tetralix*;
- **4030** European dry heaths;
- **6410** *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*);
- **7150** Depressions on peat substrates of the *Rhynchosporion*;
- **9120** Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion roburi-petraeae* or *Ilici-Fagenion*);
- **9130** *Asperulo-Fagetum* beech forests;
- **9190** Old acidophilous oak woods with *Quercus robur* on sandy plains;
- **91D0** Bog woodland; and
- **91E0** Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).

There are two Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- **7140** Transition mires and quaking bogs
- **7230** Alkaline fens

There are two Annex II species that are primary reasons for selection of this site (JNCC, 2015):

- **1044** Southern damselfly (*Coenagrion mercurial*); and
- **1083** Stag beetle (*Lucanus cervus*).

There is one Annex II species present as a qualifying feature, but not a primary reason for site selection:

- **1166** Great crested newt (GCN) (*Triturus cristatus*)

The New Forest SPA (JNCC, 2001a)

There are four Annex I species present during the breeding season that are qualifying species for selection of this site:

- Dartford warbler, 538 pairs representing at least 33.6% of the breeding population in Great Britain;
- Honey buzzard (*Pernis apivorus*), two pairs representing at least 10.0% of the breeding population in Great Britain;
- Nightjar, 300 pairs representing at least 8.8% of the breeding population in Great Britain; and
- Woodlark, 184 pairs representing at least 12.3% of the breeding population in Great Britain (Count as at 1997).

There is one Annex I species present during the over-wintering season that is a qualifying species for selection of this site:

- Hen harrier, 15 individuals representing at least 2.0% of the wintering population in Great Britain.

Portsmouth Harbour SPA (JNCC, 2001b)

Over winter

Dark-bellied Brent Goose *Branta bernicla bernicla*, 2,847 individuals representing at least 0.9% of the wintering Western Siberia/Western Europe population (5-year peak mean 1991/2 - 1995/6).

Portsmouth Harbour Ramsar (JNCC, 1995)

Ramsar criterion 3

The intertidal mudflat areas possess extensive beds of eelgrass *Zostera angustifolia* and *Zostera noltei* which support the grazing dark-bellied brent geese populations. The mud-snail *Hydrobia ulvae* is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass *Spartina anglica* dominates large areas of the saltmarsh and there are also extensive areas of green algae *Enteromorpha* spp. and sea lettuce *Ulva lactuca*. More locally the saltmarsh is dominated by sea purslane *Halimione portulacoides* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species.

Ramsar criterion 6

Dark-bellied brent goose, *Branta bernicla bernicla*, 2105 individuals, representing an average of 2.1% of the GB population (5-year peak mean 1998/9-2002/3).

Solent and Southampton Water SPA (JNCC, 2001c)

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

- During the breeding season;
 - Common tern (*Sterna hirundo*), 267 pairs representing at least 2.2% of the breeding population in Great Britain (5-year peak mean, 1993-1997);
 - Little tern (*Sterna albigrons*), 49 pairs representing at least 2.0% of the breeding population in Great Britain (5-year peak mean, 1993-1997);
 - Mediterranean gull (*Larus melanocephalus*), 2 pairs representing at least 20.0% of the breeding population in Great Britain (5-year peak mean, 1994-1998);
 - Roseate tern (*Sterna dougallii*), 2 pairs representing at least 3.3% of the breeding population in Great Britain (5-year peak mean, 1993-1997); and
 - Sandwich tern (*Sterna sandvicensis*), 231 pairs representing at least 1.7% of the breeding population in Great Britain (5-year peak mean, 1993-1997).

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:



- Over winter;
 - Black-tailed godwit (*Limosa limosa islandica*), 1,125 individuals representing at least 1.6% of the wintering Iceland - breeding population (5-year peak mean, 1992/3-1996/7);
 - Dark-bellied brent goose (*Branta bernicla bernicla*), 7,506 individuals representing at least 2.5% of the wintering Western Siberia/Western Europe population (5-year peak mean, 1992/3-1996/7);
 - Ringed plover (*Charadrius hiaticula*), 552 individuals representing at least 1.1% of the wintering Europe/Northern Africa - wintering population (5-year peak mean, 1992/3-1996/7); and
 - Teal (*Anas crecca*), 4,400 individuals representing at least 1.1% of the wintering Northwestern Europe population (5-year peak mean, 1992/3-1996/7).

The area also qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl:

Over winter, the area regularly supports 53,948 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: gadwall (*Anas strepera*), teal, ringed plover, black-tailed godwit, little grebe (*Tachybaptus ruficollis*), great crested grebe (*Podiceps cristatus*), cormorant (*Phalacrocorax carbo*), dark-bellied brent goose, wigeon (*Anas penelope*), redshank (*Tringa tetanus*), pintail (*Anas acuta*), shoveler (*Anas clypeata*), red-breasted merganser (*Mergus serrator*), grey plover (*Pluvialis squatarola*), lapwing (*Vanellus vanellus*), dunlin (*Calidris alpina alpina*), curlew (*Numenius arquata*) and shelduck (*Tadorna tadorna*).

Solent and Southampton Water Ramsar (JNCC, 1998)

Ramsar Criterion 1

The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs.

Ramsar Criterion 2

The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site.

Ramsar Criterion 5

Assemblages of international importance:

- Species with peak counts in winter: 51343 waterfowl (5-year peak mean 1998/99-2002/2003).

Ramsar Criterion 6

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

- Species with peak counts in spring/autumn:



- Ringed plover, Europe/Northwest Africa, 397 individuals, representing an average of 1.2% of the GB population (5-year peak mean 1998/9-2002/3).
- Species with peak counts in winter:
 - Dark-bellied brent goose, 6456 individuals, representing an average of 3% of the population (5-year peak mean 1998/9-2002/3);
 - Eurasian teal, NW Europe, 5514 individuals, representing an average of 1.3% of the population (5-year peak mean 1998/9-2002/3); and
 - Black-tailed godwit, Iceland/W Europe, 1240 individuals, representing an average of 3.5% of the population (5-year peak)

Chichester and Langstone Harbours SPA (JNCC, 2001d)

During the breeding season;

Little Tern *Sterna albifrons*, 100 pairs representing up to 4.2% of the breeding population in Great Britain (5-year mean, 1992-1996)

Sandwich Tern *Sterna sandvicensis*, 158 pairs representing up to 1.1% of the breeding population in Great Britain (1998)

On passage;

Little Egret *Egretta garzetta*, 137 individuals representing up to 17.1% of the population in Great Britain (Count as at 1998)

Over winter;

Bar-tailed Godwit *Limosa lapponica*, 1,692 individuals representing up to 3.2% of the wintering population in Great Britain (5-year peak mean 1991/2 - 1995/6)

Little Egret *Egretta garzetta*, 100 individuals representing up to 20.0% of the wintering population in Great Britain (Count as at 1998).

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage;

Ringed Plover *Charadrius hiaticula*, 2,471 individuals representing up to 4.9% of the Europe/Northern Africa - wintering population (5-year peak mean 1991/2 - 1995/6)

Over winter;

Black-tailed Godwit *Limosa limosa islandica*, 1,003 individuals representing up to 1.4% of the wintering Iceland - breeding population (5-year peak mean 1991/2 - 1995/6)

Dark-bellied Brent Goose *Branta bernicla bernicla*, 17,119 individuals representing up to 5.7% of the wintering Western Siberia/Western Europe population (5-year peak mean 1991/2 - 1995/6)

Dunlin *Calidris alpina alpina*, 44,294 individuals representing up to 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5-year peak mean 1991/2 - 1995/6)

Grey Plover *Pluvialis squatarola*, 3,825 individuals representing up to 2.5% of the wintering Eastern Atlantic - wintering population (5-year peak mean 1991/2 - 1995/6)



Redshank *Tringa totanus*, 1,788 individuals representing up to 1.2% of the wintering Eastern Atlantic - wintering population (5-year peak mean 1991/2 - 1995/6)

Ringed Plover *Charadrius hiaticula*, 846 individuals representing up to 1.7% of the wintering Europe/Northern Africa - wintering population (5-year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

Over winter, the area regularly supports 93,142 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Wigeon *Anas penelope*, Bar-tailed Godwit *Limosa lapponica*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Ringed Plover *Charadrius hiaticula*, Grey Plover *Pluvialis squatarola*, Dunlin *Calidris alpina alpina*, Black-tailed Godwit *Limosa limosa islandica*, Redshank *Tringa totanus*, Little Grebe *Tachybaptus ruficollis*, Little Egret *Egretta garzetta*, Shelduck *Tadorna tadorna*, Curlew *Numenius arquata*, Teal *Anas crecca*, Pintail *Anas acuta*, Shoveler *Anas clypeata*, Red-breasted Merganser *Mergus serrator*, Oystercatcher *Haematopus ostralegus*, Lapwing *Vanellus vanellus*, Knot *Calidris canutus*, Sanderling *Calidris alba*, Cormorant *Phalacrocorax carbo*, Whimbrel *Numenius phaeopus*.
ak mean 1998/9-2002/3).

Chichester and Langstone Harbours Ramsar (JNCC, 1987)

Ramsar criterion 5

Assemblages of international importance: Species with peak counts in winter: 76480 waterfowl (5-year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

- Ringed plover *Charadrius hiaticula*, Europe / Northwest Africa 853 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/9- 2002/3)
- Black-tailed godwit *Limosa limosa islandica*, Iceland/W Europe 906 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/9- 2002/3)
- Common redshank *Tringa totanus totanus*, 2577 individuals, representing an average of 1% of the population (5-year peak mean 1998/9- 2002/3)

Species with peak counts in winter:

- Dark-bellied brent goose *Branta bernicla bernicla*, 12987 individuals, representing an average of 6% of the population (5-year peak mean 1998/9- 2002/3)
- Common shelduck *Tadorna tadorna*, NW Europe 1468 individuals, representing an average of 1.8% of the GB population (5-year peak mean 1998/9-2002/3)
- Grey plover, E Atlantic/W Africa -wintering 3043 individuals, representing an average of 1.2% of *Pluvialis squatarola* the population (5-year peak mean 1998/9-2002/3)

- Dunlin *Calidris alpina alpina*, W Siberia/W Europe 33436 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species regularly supported during the breeding season:

Little tern *Sterna albifrons albifrons*, W Europe 130 apparently occupied nests, representing an average of 1.1% of the breeding population (Seabird 2000 Census)

Solent Maritime SAC (JNCC, 2015e)

Annex I habitats that are a primary reason for selection of this site

1130 Estuaries

The Solent encompasses a major estuarine system on the south coast of England with four coastal plain **estuaries** (Yar, Medina, King's Quay Shore, Hamble) and four bar-built **estuaries** (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The site is the only one in the series to contain more than one physiographic sub-type of estuary and is the only cluster site. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four tides each day, and for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive estuarine flats, often with intertidal areas supporting eelgrass *Zostera* spp. and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches of the estuaries to very sheltered almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour.

1320 Spartina swards (Spartinion maritimae)

Solent Maritime is the only site for smooth cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of small cord-grass *S. maritima* are found. It is also one of the few remaining sites for Townsend's cord-grass *S. x townsendii* and holds extensive areas of common cord-grass *Spartina anglica*, all four taxa thus occurring here in close proximity. It has additional historical and scientific interest as the site where *S. alterniflora* was first recorded in the UK (1829) and where *S. x townsendii* and, later, *S. anglica* first occurred.

1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

The Solent contains the second-largest aggregation of **Atlantic salt meadows** in south and south-west England. Solent Maritime is a composite site composed of a large number of separate areas of saltmarsh. In contrast to the Severn estuary, the salt meadows at this site are notable as being representative of the ungrazed type and support a different range of communities dominated by sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima*. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland. Typical **Atlantic salt meadow** is still widespread in this site, despite a long history of colonisation by cord-grass *Spartina* spp.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1150 Coastal lagoons * Priority feature
- 1210 Annual vegetation of drift lines
- 1220 Perennial vegetation of stony banks
- 1310 Salicornia and other annuals colonizing mud and sand
- 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")"

Annex II species present as a qualifying feature, but not a primary reason for site selection

- 1016 Desmoulin's whorl snail *Vertigo moulinsiana*

Kingley Vale SAC (JNCC, 2015f)

Annex I habitats that are a primary reason for selection of this site

- 91J0 *Taxus baccata* woods of the British Isles * Priority feature

Kingley Vale is one of the sites representing yew *Taxus baccata* woods on chalk, in the central southern part of its UK range. It has been selected primarily because of its size, as it is the largest area of yew woodland in Britain. It also shows excellent conservation of the full range of habitat structure and function.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

- 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)

Solent and Dorset Coast pSPA (Natural England, 2016)

The proposal for Solent and Dorset Coast is to create a new SPA for internationally important populations of:

- common tern *Sterna hirundo*
- Sandwich tern *Thalasseus sandvicensis*
- little tern *Sterna albifrons*

Pagham Harbour SPA (JNCC, 2001e)

This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

Little Tern *Sterna albifrons*, 12 pairs representing 0.5% of the breeding population in Great Britain (Count as at 1995)



Over winter;

Ruff *Philomachus pugnax*, 160 individuals representing at least 22.9% of the wintering population in Great Britain

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

Over winter;

Pintail *Anas acuta*, 628 individuals representing at least 1.0% of the wintering Northwestern Europe population (5-year peak mean 1991/2 – 1995/6)



Appendix D: Nutrient Balancing Calculations



Table 3: Calculating Total Nitrogen (TN) Load From Development Wastewater (Stage 1)

Step	Measurement	Value	Unit	Explanation
Development proposal	Development types that would increase the population served by a wastewater system	120.000	Residential dwellings	Number of dwellings
1	Additional population	288.000	Persons	Uses an average household size of 2.4 x number of dwellings
2	Wastewater volume generated by development	31680.000	L/day	Persons x 110 litres/day. Where relevant, deduct wastewater volume of population displaced by the proposed development.
3	Waste Water Treatment Works (WwTW) environmental limit for TN	9.700	mg/l TN	Local WWTW limit (Budds Farm WwTW)
4	Assume discharge to be at 90% of consent limit and deduct acceptable TN loading (@ 2 mg/l TN) (as defined in paragraph 4.40 of Natural England guidance ²).	6.730	mg/l TN	Step 3 x 0.9 - 2mg/l TN
5	TN discharged after WwTW	213206.400	mg/l TN	90% of environmental limit
6	TN discharged after WwTW	0.213	mg/TN/day	Divide by 1,000,000
7	Convert mg/TN to kg/TN per day	77.820	Kg/TN/day	x365 days
TN Load Wastewater 77.820 Kg/TN/yr				



Table 4: Calculating TN Load From Current Land use (Stage 2)

Step	Measurement	Farm type	Value	Unit	Explanation
1	Total area of existing land	Land not in agricultural production	4.71 ha	ha	Area of land needed for development
2	Land type nitrate loss	Land not in agricultural production	5.00	Kg/ha/yr	Land-use comprises Land not in agricultural production
3	Multiply total area by land type nitrate loss	Land not in agricultural production	23.550	Kg/TN/yr	Area x nitrate loss
TN Load Current Land Use 23.550 Kg/TN/yr					

Table 5: Calculating TN Load From Future Land Uses (Stage 3)

Step	Measurement	Value	Unit	Explanation
1	Future urban land	2.530	ha	Area of development that will change from agricultural land to urban land use
2	Total nitrogen load from future urban area	36.179	Kg/TN/yr	Area (ha) x 14.3 Kg/TN/yr (nitrogen leaching from urban land each year)
3	New open space	2.180	ha	Area of development that will change to Open space (all areas below 0.5 ha so still classed as urban land)
4	TN load from Open space	10.900	Kg/TN/yr	Area (ha) x 14.3 Kg/TN/yr (nitrogen leaching from Open space each year)
5	Combine TN load from future land uses	47.079	Kg/TN/yr	Step 2 + Step 4
TN Load Future Land Use 47.079 Kg/TN/yr				



Table 6: Calculating Net Change in TN from The Development (Stage 4)

Step	Measurement	Value	Unit	Explanation
1	Identify TN loads from wastewater	77.820	Kg/TN/yr	Stage 1
2	Calculate TN from land use – subtract TN load from future land uses (Stage 3) from existing land uses (Stage 2)	-23.529	Kg/TN/yr	Stage 2 – Stage 3
3	Determine nitrogen budget – the difference between the TN load for the proposed development and the existing uses	101.349	Kg/TN/yr	Step 1 – Step 2
4	Calculate and include 20% buffer	121.619	Kg/TN/yr	Step 3 + 20%
TN Budget 121.619 Kg/TN/yr				



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