

Habitats Regulations Assessment of the Southbourne Neighbourhood Plan Review

Southbourne Parish Council

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Quality information

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1. Introduction

- 1.1 Southbourne Parish Council (SPC) appointed AECOM to undertake a report to inform the Habitats Regulations Assessment (HRA) of the Southbourne Parish Neighbourhood Plan Review 2019 – 2037. This is to inform the steering group and Chichester District Council (CDC) of the potential effects of the Southbourne Neighbourhood Plan (SNP) on European Sites. The HRA will assess if any policies contained in the SNP will result in Likely Significant Effects (LSEs) and, where applicable, have the potential to cause adverse effects on the integrity of European sites (Special Areas of Conservation, SACs, Special Protection Areas, SPAs, and Ramsar sites designated under the Ramsar convention), either in isolation or in combination with other plans and projects. If this is the case it will evaluate whether site-specific or policy mitigation measures are required.
- 1.2 The SNP will cover the years between 2019 and 2037, the same years as the emerging Chichester Local Plan (CLP). An initial report to inform HRA was produced in summer 2020 and consulted upon with Natural England and CDC. Both bodies agreed with the report and its recommendations. This document presents the report to inform the HRA of the final Neighbourhood Plan. Southbourne Parish lies south-east of Westbourne Parish and west of Chidham and Hambrook Parish in a relatively rural area. It is situated in an Area of Outstanding Natural Beauty (AONB), bordering the Chichester and Langstone Harbours SPA / Ramsar and the Solent Maritime SAC. Given the proximity of the plan area to sites of significant ecological interest, a potential for Likely Significant Effects (LSEs) exists.
- 1.3 CDC intends to extend the Local Plan period to 2035 and the Issues and Options document was subjected to HRA by AECOM in 2017. The impact pathways identified in relation to growth in the district included urbanisation, recreational pressure, loss of functionally linked land, increased water demand, water quality, atmospheric pollution, disturbance of bat flight lines and coastal squeeze. Most impact pathways are also relevant to the SNP, while a few (e.g. disturbance of bat flight lines) are not relevant because the distance between the parish and European sites is too great. While the CLP HRA assessed a different quantum of growth (i.e. all growth across Chichester District), it is nonetheless a useful starting point for identifying European sites linked to the SNP.
- 1.4 While the SNP allocates 199 homes on Land North of Cooks Lane, this allocation obtained outline planning consent in March 2020. The accompanying HRA would have considered the relevant impact pathways, including recreational pressure, water quality (in relation to available headroom at WWTWs), water quantity, level and flow, atmospheric pollution and loss of functionally linked habitat. These impact pathways are not reassessed here. However, the report to inform HRA of the site allocated under Policy SB2 predated the nutrient neutrality issue in the Solent and requires assessment in that context. Furthermore, while it is an existing allocation in the adopted SNP, the report to inform HRA of land for educational and recreational uses (Policy SB11) would have predated the People over Wind ruling (which restricts the consideration of mitigation measures to the Appropriate Assessment stage of HRA). Therefore, this allocation is resubjected to the current legal form of HRA.
- 1.5

Legislation

- 1.6 The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (“the Withdrawal Act”). This established a transition period, which ended on 31 December 2020. The Withdrawal Act retains the body of existing EU-derived law within our domestic law. The most recent amendments to the Habitats Regulations – the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – make it clear that the need for HRA continues after Brexit.

- 1.7 The HRA process applies the 'Precautionary Principle'¹ to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the European site(s) in question. Plans and projects with predicted adverse impacts on European sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensatory mechanisms are required to preserve the overall integrity of the site network.
- 1.8 In order to ascertain whether or not site integrity will be affected, a report to inform Appropriate Assessment should be undertaken of the plan or project in question (see Figure 1 below):

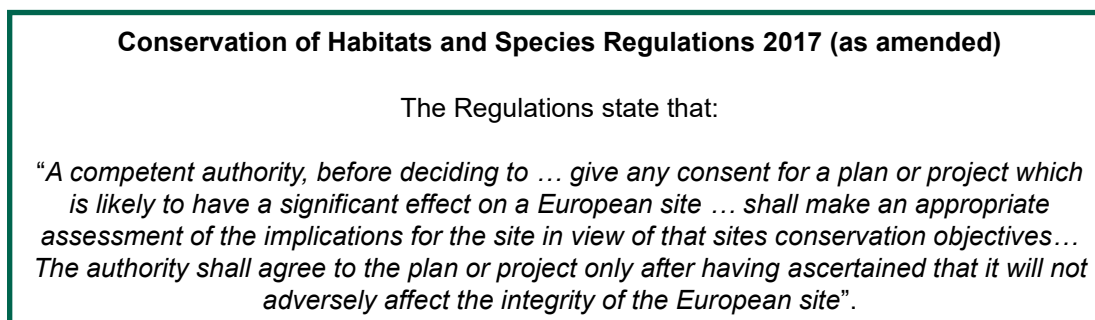


Figure 1: The legislative basis for Appropriate Assessment

- 1.9 Over time the phrase 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the Conservation of Habitats and Species Regulations 2017 (as amended) from screening through to IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an 'Appropriate Assessment'.
- 1.10 In spring 2018 the 'Sweetman' European Court of Justice ruling² clarified that 'mitigation' (i.e. measures that are specifically introduced to avoid or reduce a harmful effect on a European site that would otherwise arise) should **not** be taken into account when determining Likely Significant Effects (LSEs) and only be considered at the Appropriate Assessment stage. This report to inform the HRA of the SNP has been cognisant of that ruling.
- 1.11 This report has two purposes:
- To assist the Qualifying Body (Southbourne Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect European sites, thus making it more likely their plan will be deemed compliant with the Conservation of Habitats and Species Regulations 2017 (as amended); and
 - On behalf of the Qualifying Body, to assist the overarching Local Planning Authority (Chichester District Council) to discharge their duty under Regulation 105 (in their role as 'plan-making authority' within the meaning of that regulation) and Regulation 106 (in their role as 'competent authority').
- 1.12 As 'competent authority', the legal responsibility for ensuring that a screening for LSEs is completed, an Appropriate Assessment (where required) is undertaken, and Natural England are consulted, falls on the Local Planning Authority. However, they are entitled to request from the Qualifying Body the necessary information on which to base their judgment, which is the key purpose of this report.

Scope of the Project

- 1.13 There is no guidance that dictates the physical scope of an HRA of a Plan under all circumstances. Therefore, in determining the physical scope of the assessment, AECOM was guided primarily by identified impact pathways (called the source-pathway-receptor model) rather

¹ The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: *“When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis”.*

² People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

than by arbitrary 'zones'. Current guidance suggests that the following European sites should be included in the scope of assessment:

- All sites within the geographic boundary of Southbourne Parish;
- European sites within a 10km search area surrounding Southbourne Parish; and
- Other sites shown to be linked to the SNP through a known impact 'pathway' (discussed below).

1.14 Briefly defined, impact pathways are routes by which the implementation of a Plan document may lead to a negative effect upon a European site. An example of this is an increase in recreational pressure due to the allocation of residential development over a given Plan period. An increase in the local population is associated with a heightened demand for outdoor spaces, some of which may constitute European sites.

1.15 Guidance from the Ministry of Housing, Communities and Local Government (MHCLG) states that a HRA should be '*proportionate to the geographical scope of the [policy / management approach]*' and that '*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*' (MHCLG, 2006, p.6). More recently, the Court of Appeal ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be '*achieved in practice*' to satisfy that the proposed plan or strategy would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a high-level strategic document). In this case the High Court ruled that for '*a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations.*'

1.16 In order to fully inform the evidence base of this report to inform HRA, several documents, studies and other information sources have been consulted. These include:

- Adopted Southbourne Parish Neighbourhood Plan 2014-2029³;
- Nutrient Neutrality Generic Methodology⁴;
- Nutrient Budget Calculator Guidance Document for the Solent⁵;
- Nutrient Budget Calculator for the Solent published by Natural England⁶;
- Solent Waders and Brent Goose Strategy⁷ and its associated guidance on mitigation and off-setting requirements⁸;
- The UK Air Pollution Information System (www.apis.ac.uk);
- Multi Agency Geographic Information for the Countryside (MAGIC) and its links to SSSI citations and the JNCC website (www.magic.gov.uk).

The Layout of this Report

1.17 Chapter 2 of this report explains the methodology by which this report to inform HRA has been carried out, including the three essential tasks that form part of HRA. Chapter 3 provides detail

³ Southbourne Parish Council. (September 2015). 53pp. Available at: https://www.chichester.gov.uk/media/25111/Southbourne-Parish-Neighbourhood-Plan-Final-Sept-2015/pdf/SPNP_from_rCOH_12_9_15_Final_Sept_2015.pdf [Accessed on the 20/07/2022]

⁴ Ricardo Energy & Environment. Nutrient Neutrality Generic Methodology. Project commissioned by Natural England. 37pp.

⁵ Ricardo Energy & Environment. Nutrient Budget Calculator Guidance Document. Prepared on behalf of Natural England.

14pp. Available at: https://www.chichester.gov.uk/media/36715/Nutrient-Budget-Calculator-Guidance/pdf/Nutrient_Budget_Calculator_Guidance.pdf [Accessed on the 20/07/2022]

⁶ Available at: <https://www.chichester.gov.uk/nutrientneutrality> [Accessed on the 20/07/2022]

⁷ Solent Waders and Brent Goose Steering Group. (2020). Solent Waders and Brent Goose Strategy. 43pp. Available at: <https://solentwbgs.files.wordpress.com/2021/03/solent-waders-brent-goose-strategy-2020.pdf> [Accessed on the 29/03/2022]

⁸ Solent Waders and Brent Goose Steering Group. (October 2018). Solent Waders and Brent Goose Strategy – Guidance on Mitigation and Off-setting Requirements. 15pp. Available at: <https://solentwbgs.files.wordpress.com/2021/03/swbgs-mitigation-guidance-oct-2018.pdf> [Accessed on the 29/03/2022]

on the European sites relevant to the SNP, including an introduction to the sites, a summary of their qualifying habitats / species, Natural England Conservation Objectives and the current threats and pressures relevant to these sites. Detailed background on the main impact pathways identified in relation to the SNP and European sites is provided in Chapter 4. Chapter 5 undertakes the LSEs screening of the identified European sites. An analysis to inform Appropriate Assessment of the impact pathways for which LSEs could not be excluded is carried out in Chapter 6. The conclusions arising from the HRA process are set out in Chapter 7.

Quality Assurance

- 1.18 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.
- 1.19 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2017).

2. Methodology

- 2.1 The report to inform the HRA of the SNP has been carried out with reference to the general EC guidance on HRA⁹ and that updated by the UK government in February 2021¹⁰; These have been referred to in undertaking this report.
- 2.2 Figure 2 below outlines the stages of HRA according to current EC guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

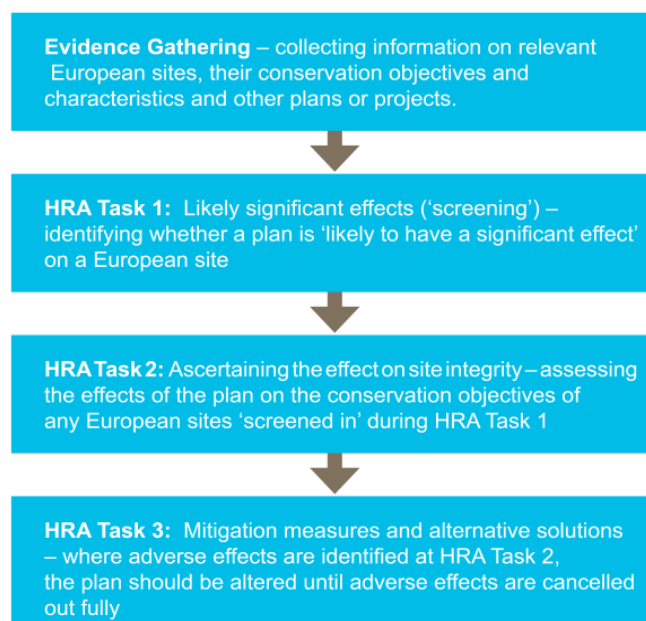


Figure 2: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2001¹¹.

HRA Task 1 – Screening for Likely Significant Effects (LSE)

- 2.3 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a Likely Significant Effects (LSEs) test – essentially a risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

"Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?"

- 2.4 The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction. This stage is undertaken in Chapter 5 of this report.

HRA Task 2 – Appropriate Assessment (AA)

- 2.5 The impact pathways identified in the previous stage for which LSEs could not be excluded, need to be assessed in the next stage of HRA known as Appropriate Assessment. Case law has

⁹ European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.

¹⁰ <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>

¹¹ http://www.ukmpas.org/pdf/practical_guidance/HRGN1.pdf

clarified that 'Appropriate Assessment' is **not** a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to Appropriate Assessment rather than the screening for LSEs.

- 2.6 By virtue of the fact that it follows the screening process, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during Appropriate Assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the Appropriate Assessment would take any policies or allocations that could not be dismissed following the high-level screening analysis and assess the potential for an effect in more detail, with a view to concluding whether there would actually be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the European site(s)).
- 2.7 Also, in 2018 the Holohan ruling¹² was handed down by the European Court of Justice. Among other provisions paragraph 39 of the ruling states that '*As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, ... typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area*' [emphasis added]. This has been considered in relation to the Chichester and Langstone Harbours SPA / Ramsar, which supports mobile overwintering waterfowl and waders that are known to critically depend on supporting habitats (e.g. high-tide roosts, amenity grassland and agricultural fields) beyond the designated site boundary.

HRA Task 3 – Avoidance and Mitigation

- 2.8 Where necessary, measures are recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on European sites. For example, there is considerable precedent concerning the level of detail that a Neighbourhood Plan document needs to contain regarding mitigation for recreational impacts on European sites. The implication of this precedent is that it is not necessary for all measures that will be deployed to be fully developed prior to adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.
- 2.9 In evaluating significance of impacts and effectiveness of mitigation, AECOM has relied on professional judgement and conclusions of the overarching CLP.
- 2.10 When discussing mitigation in the context of a Neighbourhood Plan, one is concerned primarily with the policy framework that enables the delivery of such mitigation rather than specific details of mitigation measures since the Neighbourhood Plan is a higher level policy document (effectively an intermediate tier in the planning framework, sitting between the overarching Local Plan / Core Strategy and subordinate planning applications).

Confirming Other Plans and Projects That May Act 'In Combination'

- 2.11 It is a requirement of the Regulations that the impacts of any development plans are not only considered in isolation but in-combination with other plans and projects that may also be affecting the European site(s) in question.
- 2.12 For example, when considering the potential for combined housing development across multiple parishes to impact European sites, a key emphasis must be on the cumulative impact of visitor numbers (i.e. recreational pressure). While one parish might only contribute a minor portion of recreational pressure (with no negative impact on a European site), other adjacent parishes may also each contribute minor 'amounts' of such pressure. Cumulatively, this could result in detectable effects on designated features, such as overwintering birds. A useful starting point for assessing in-combination effects of a Neighbourhood Plan is the overarching Local Plan or Core Strategy, which allocates development on a strategic scale, including across multiple constituent parishes.

¹² Case C-461/17

- 2.13 When undertaking this part of the assessment it is essential to bear in mind the principal intention behind the legislation i.e. to ensure that those projects or plans (which in themselves may have minor impacts) are not simply dismissed on that basis but are evaluated for any cumulative contribution they may make to an overall significant effect. In practice, in-combination assessment is of greatest relevance when the plan or policy would otherwise be screened out because its individual contribution is negligible.

3. European Sites

Chichester and Langstone Harbours SPA / Ramsar

Introduction

- 3.1 The Chichester and Langstone Harbours SPA / Ramsar is a complex of large, sheltered estuarine basins comprising sand- and mudflats that are exposed at low tide. The two harbours are connected via a stretch of water that separates Hayling Island from the mainland. Some tidal channels drain the basin and reach far inland. The mudflats harbour a rich assemblage of invertebrates and algae, such as *Enteromorpha* spp. and eelgrasses *Zostera* spp. The wide range of habitats present in the Chichester and Langstone Harbours SPA / Ramsar support key animal communities. These include significant numbers of waterbirds during migration and over winter. Furthermore, the site supports important colonies of breeding terns, which are rare in southern England.

SPA Qualifying Features¹⁶

- 3.2 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*; 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)
- Common tern *Sterna hirundo*; 126 pairs (5 year mean, 2011-2015)

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% of the wintering population in Great Britain (Count as at 1998)

- 3.3 This site 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)

¹⁶ Available at: <http://jncc.defra.gov.uk/default.aspx?page=2034> [Accessed on the 12/08/2020]

- 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)
- Common shelduck *Tadorna tadorna*; 1,096 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Eurasian wigeon *Anas Penelope*; 3,947 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Eurasian teal *Anas crecca*; 1,953 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Northern pintail *Anas acuta*; 338 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Northern shoveler *Anas clypeata*; 106 individuals wintering populations (5 year peak mean 2009/10 – 2013/14)
- Red-breasted merganser *Mergus serrator*; 366 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Sanderling *Calidris alba*; 216 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Eurasian curlew *Numenius arquata*; 3,181 individuals wintering population (5 year peak mean 2009/10 – 2013/14)
- Ruddy turnstone *Arenaria interpres*; 501 individuals wintering population (5 year peak mean 2009/10 – 2013/14)

3.4 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*.

Ramsar Qualifying Features¹⁷

3.5 The Chichester and Langstone Harbours qualify as a Ramsar site under the following criteria:

Criterion 1

Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes.

Criterion 5

Assemblages of international importance

Species with peak counts in winter

76,480 waterfowl (5 year peak mean 1998/99 – 2002/03)

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*: 2,577 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*: 12,987 individuals, representing an average of 6% of the population (5 year peak mean 1998/9 – 2002/3)
- Common shelduck *Tadorna tadorna*, NW Europe: 1,468 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9 – 2002/3)
- Grey plover *Pluvialis squatarola*, E Atlantic / W Africa – wintering: 3,043 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9 – 2002/3)
- Dunlin *Calidris alpina alpina*, W Siberia / W Europe: 33,436 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

SPA Conservation Objectives¹⁸

3.6 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

3.7 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

¹⁷ Available at: <http://jncc.defra.gov.uk/pdf/RIS/UK11013.pdf> [Accessed on the 20/08/2020]

¹⁸ Available at: <http://publications.naturalengland.org.uk/publication/5789102905491456> [Accessed on the 20/08/2020]

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Threats / Pressures to Site Integrity¹⁹

3.8 The following threats and pressures to the integrity of the Chichester and Langstone Harbours SPA have been identified in the Natural England Site Improvement Plan:

- Public access / disturbance
- Coastal squeeze
- Fisheries: Commercial marine and estuarine
- Water pollution
- Changes in species distribution
- Climate change
- Change to site conditions
- Invasive species
- Direct land take from development
- Biological resource use
- Change in land management
- Inappropriate pest control
- Air pollution: Impact of atmospheric nitrogen deposition
- Hydrological changes
- Extraction: Non-living resources

Solent Maritime SAC

Introduction

3.9 The Solent comprises a major estuarine system on the south coast of England with four coastal plain estuaries and four bar-built estuaries. The maritime SAC is the only site that contains a cluster of physiographic sub-types of estuary. Furthermore, in contrast to all other European estuaries, the Solent has a unique hydrographic regime consisting of four tides per day.

3.10 The site also harbours a complex array of marine and estuarine habitats. Sediment habitats in the estuarine system include extensive estuarine flats with intertidal areas, supporting eelgrass *Zostera* spp., green algae, sand and shingle spits, and shoreline transitions. Mudflat habitats range from low or variable salinity in the upper reaches of the estuaries to fully marine mudflats in Chichester and Langstone Harbours. Unusual species in these habitats include rare sponges, communities of a polychaete *Sabellaria spinulosa* and smooth cord-grass *Spartina alterniflora*.

3.11 Within the Solent Maritime SAC, the second-largest aggregation of Atlantic salt meadows in south / south-west England is located. The saltmarsh is present as a large number of disjointed habitat

¹⁹ Available at: <http://publications.naturalengland.org.uk/publication/4692013588938752> [Accessed on the 20/08/2020]

patches. This ungrazed aquatic plant community is dominated by sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima*. Overall, the site is less disturbed by man-made structures than other parts of the southern coast.

Qualifying Features²⁰

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

- Estuaries
- Spartina swards (*Spartinion maritimae*)
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

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

- Sandbanks which are slightly covered by sea water all the time
- Mudflats and sandflats not covered by sea water at low tide
- Coastal lagoons
- Annual vegetation of drift lines
- Perennial vegetation of stony banks
- *Salicornia* and other annuals colonizing mud and sand
- Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')

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

- Desmoulin's whorl snail *Vertigo moulinsiana*

Conservation Objectives²¹

3.15 With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

3.16 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Threats / Pressures to Site Integrity²²

3.17 The following threats and pressures to the integrity of the Solent Maritime SAC have been identified in the Natural England Site Improvement Plan:

²⁰ Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0030059> [Accessed on the 20/08/2020]

²¹ Available at: <http://publications.naturalengland.org.uk/publication/4857883850178560> [Accessed on the 20/08/2020]

²² Available at: <http://publications.naturalengland.org.uk/publication/4692013588938752> [Accessed on the 20/08/2020]

- Public access / disturbance
- Coastal squeeze
- Fisheries: Commercial marine and estuarine
- Water pollution
- Changes in species distribution
- Climate change
- Change to site conditions
- Invasive species
- Direct land take from development
- Biological resource use
- Change in land management
- Inappropriate pest control
- Air pollution: Impact of atmospheric nitrogen deposition
- Hydrological changes
- Extraction: Non-living resources

4. Relevant Impact Pathways

Recreational Pressure

- 4.1 There is concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfill conservation objectives while also providing recreational opportunity. Various research reports have provided compelling links between changes in housing and access levels²³, and impacts on European protected sites^{24 25}. This applies to any habitat, but recreational pressure from housing growth is of particular significance for European sites designated for their bird interest. Some SPA / Ramsar waterfowl are known to be especially sensitive to disturbance. Different European sites are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex. HRAs of planning documents tend to focus on recreational sources of disturbance as a result of new residents²⁶.
- 4.2 Human activity can affect birds either directly (e.g. by eliciting flight responses) or indirectly (e.g. by damaging habitat or reducing bird fitness in less obvious ways such as through inducing stress responses). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to much subtler behavioural (e.g. alterations in feeding behaviour, avoidance of certain areas and use of sub optimal areas etc.) and physiological changes (e.g. an increase in heart rate). While such changes are less noticeable, they might result in major population-level changes by altering the balance between immigration / birth and emigration / death²⁷.
- 4.3 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and time spent responding to disturbance is time that is not spent feeding²⁸. This increases energetic expenditure while reducing energetic intake, which can adversely affect the 'condition' and ultimately survival of birds. Additionally, displacement of birds from one feeding site to another can increase the pressure on the resources available within alternative foraging sites, which must sustain a greater number of birds²⁹. Moreover, the higher proportion of time a breeding bird spends away from its nest, the more likely it is that eggs will cool and the more vulnerable they, or any nestlings, are to predators. Recreational effects on ground-nesting birds are particularly severe, with many studies concluding that urban sites support lower densities of key species, such as stone curlew and nightjar^{30 31}.
- 4.4 Several factors (e.g. seasonality, type of recreational activity) may have pronounced impacts on the nature of bird disturbance. Disturbance in winter may be more impactful because food shortages make birds more vulnerable at this time of the year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and the lower overall sensitivity of birds outside the breeding season. Evidence in the literature suggests that the magnitude of disturbance considerably differs between recreational activities. For example, dog walking leads

²³ Weitowitz D.C., Panter C., Hoskin R. & Liley D. 2019. The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* 5. <https://doi.org/10.1093/jue/juz019>

²⁴ Liley D, Clarke R.T., Mallord J.W., Bullock J.M. 2006a. The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. *Natural England / Footprint Ecology*.

²⁵ Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. 2006b. Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. *Footprint Ecology / Dorset County Council*.

²⁶ The RTP1 report 'Planning for an Ageing Population' (2004) which states that 'From being a marginalised group in society, the elderly are now a force to be reckoned with and increasingly seen as a market to be wooed by the leisure and tourist industries. There are more of them and generally they have more time and more money.' It also states that 'Participation in most physical activities shows a significant decline after the age of 50. The exceptions to this are walking, golf, bowls and sailing, where participation rates hold up well into the 70s'.

²⁷ Riley, J. (2003). Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

²⁸ Riddington, R. *et al.* (1996). The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279.

²⁹ Gill, J.A., Sutherland, W.J. & Norris, K. (1998). The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72.

³⁰ Clarke R.T., Liley D., Sharp J.M., Green R.E. (2013). Building development and roads: Implications for the distribution of stone curlews across the Brecks. *PLOS ONE*. <https://doi:10.1371/journal.pone.0072984>.

³¹ Liley D. & Clarke R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation* 114: 219-230.

to a significantly higher reduction in bird diversity and abundance compared to hiking³². Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers³³. Furthermore, differences in on-site route lengths and usage patterns likely imply that key spatial and temporal parameters (such as the area of a site potentially impacted and the frequency of disturbance) will also differ between recreational activities. This suggests that activity type is a factor that ought to be taken into account in HRAs.

Non-breeding birds (September to March)

4.5 The Chichester and Langstone Harbours SPA / Ramsar is designated for overwintering waders and waterfowl and this section summarises findings of some key academic research studies available for these groups of birds. Many studies have related bird abundances to different types of recreational activities and report the following evidence:

- Evans & Warrington⁴¹ found that total waterbird numbers (including shoveler and gadwall) on Sundays were 19% higher on Stocker's Lake LNR in Hertfordshire and attributed this to greater recreational activity on surrounding water bodies at weekends relative to weekdays displacing birds into the LNR. However, in this study, recreational activity was not quantified in detail, nor were individual recreational activities evaluated separately.
- Tuite et al⁴² used a large (379 sites), long-term (10-year) dataset (September – March species counts) to correlate seasonal changes in wildfowl abundance with the presence of various recreational activities. They determined that shoveler was one of the most sensitive species to recreational activities, such as sailing/windsurfing and rowing. Studies on recreation in the Solent have established that human leisure activities cause direct disturbance to wintering waterfowl populations^{43 44}.
- A study on recreational disturbance on the Humber⁴⁵ assesses different types of noise disturbance on waterfowl referring to studies of aircraft (see Drewitt 1999⁴⁶), traffic (Reijnen, Foppen, & Veenbaas 1997)⁴⁷, dogs (Lord, Waas, & Innes 1997⁴⁸; Banks & Bryant 2007⁴⁹) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). In very general terms, both distance from the source of disturbance and the scale of the disturbance (noise level, group size) will both influence the response (Delaney et al. 1999⁵⁰; Beale & Monaghan 2005⁵¹). On UK estuaries and coastal sites, a review of WeBS data showed that driving of motor vehicles and shooting were the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)⁵².

³² Banks P.B., Bryant J.Y. (2007). Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* 3: 14pp.

³³ Miller S.G., Knight R.L., Miller C.K. (2001). Wildlife responses to pedestrians and dogs. *Wildlife Society Bulletin* 29: 124-132.

⁴¹ Evans, D.M. & Warrington, S. 1997. The effects of recreational disturbance on wintering waterbirds on a mature gravel pitlake near London. *International Journal of Environmental Studies* 53: 167-182

⁴² Tuite, C.H., Hanson, P.R. & Owen, M. 1984. Some ecological factors affecting winter wildfowl distribution on inland waters in England and Wales and the influence of water-based recreation. *Journal of Applied Ecology* 21: 41-62

⁴³ Footprint Ecology. 2010. Recreational Disturbance to Birds on the Humber Estuary

⁴⁴ Footprint Ecology, Jonathan Cox Associates & Bournemouth University. 2010. Solent disturbance and mitigation project – various reports.

⁴⁵ Helen Fearnley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology

⁴⁶ Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.

⁴⁷ Reijnen, R., Foppen, R. & Veenbaas, G. (1997) Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation*, 6, 567-581.

⁴⁸ Lord, A., Waas, J.R. & Innes, J. (1997) Effects of human activity on the behaviour of northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. *Biological Conservation*, 82,15-20.

⁴⁹ Banks, P.B. & Bryant, J.V. (2007) Four-legged friend of foe? Dog-walking displaces native birds from natural areas. *Biology Letters*, 3, 611-613.

⁵⁰ Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L.M. & Reiser, H. (1999) Effects of Helicopter Noise on Mexican Spotted Owls. *The Journal of Wildlife Management* 63: 60-76.

⁵¹ Beale, C.M. & Monaghan, P. (2005) Modeling the Effects of Limiting the Number of Visitors on Failure Rates of Seabird Nests. *Conservation Biology* 19: 2015-2019.

⁵² Robinson, J.A. & Pollitt, M.S. (2002) Sources and extent of human disturbance to waterbirds in the UK: an analysis of Wetland Bird Survey data, 1995/96 to 1998/99: Less than 32% of counters record disturbance at their site, with differences in causes between coastal and inland sites. *Bird Study* 49: 205.

4.6 The specific distance at which a species takes flight when disturbed is known as the tolerance distance (also called the escape flight distance), which greatly differs between species. Tolerance distances from various literature sources are summarised in Table 1. It is reasonable to assume from this evidence that disturbance is unlikely to be relevant at distances of beyond 200m. Tolerance distances are known for only few species and should be extrapolated to other species with caution.

Table 1: Tolerance distances (m) of 21 species of waterfowl to various forms of recreational disturbance, as described in the literature. Where the mean is not available, distances are provided as a range.⁵³

Species	Type of disturbance. ¹ Tydeman (1978), ² Keller (1989), ³ Van der Meer (1985), ⁴ Wolff et al (1982), ⁵ Blankestijn et al (1986)		
	Rowing boats/kayak	Sailing boats	Walking
Little grebe		60 – 100 ¹	
Great crested grebe	50 – 100 ²	20 – 400 ¹	
Mute swan		3 – 30 ¹	
Teal		0 – 400 ¹	
Mallard		10 – 100 ¹	
Shoveler		200 – 400 ¹	
Pochard		60 – 400 ¹	
Tufted duck		60 – 400 ¹	
Goldeneye		100 – 400 ¹	
Smew		0 – 400 ¹	
Moorhen		100 – 400 ¹	
Coot		5 – 50 ¹	
Curlew			211 ³ ; 339 ⁴ ; 213 ⁵
Shelduck			148 ³ ; 250 ⁴
Grey plover			124 ³
Ringed plover			121 ³
Bar-tailed godwit			107 ³ ; 219 ⁴
Brent goose			105 ³
Oystercatcher			85 ³ ; 136 ⁴ ; 82 ⁵
Dunlin			71 ³ ; 163 ²

4.7 Mitigation measures to avoid recreational pressure effects usually involve a combination of access management, habitat management and provision of alternative recreational space. Access management (restricting access to some or all of a European site) is not typically within the remit of a Parish Council and may contravene a range of Government policies on access to open space and objectives for increasing exercise, improving health etc. However, active management of access may be possible, such as that practised on nature reserves. Habitat management also does not lie within the direct remit of Parish Councils. However, the Council can help to set a framework for improved habitat management by promoting collaboration with neighbouring parishes and Local Planning Authorities. Provision of alternative recreational space can help to attract recreational users away from sensitive European sites to reduce disturbance

⁵³ Tydeman, C.F. 1978. Gravel Pits as conservation areas for breeding bird communities. PhD thesis. Bedford College
 Keller, V. 1989. Variations in the response of Great Crested Grebes *Podiceps cristatus* to human disturbance - a sign of adaptation? *Biological Conservation* 49: 31-45
 Van der Meer, J. 1985. *De verstoring van vogels op de slikken van de Oosterschelde*. Report 85.09 Deltadienst Milieu en Inrichting, Middelburg. 37 pp.
 Wolf, W.J., Reijnders, P.J.H. & Smit, C.J. 1982. The effects of recreation on the Wadden Sea ecosystem: many questions but few answers. In: G. Luck & H. Michaelis (Eds.), *Schriftenreihe M.E.L.F., Reihe A: Agnew. Wissensch* 275: 85-107
 Blankestijn, S. et al. 1986. *Seizoensverbreding in de recreatie en verstoring van Wulp en Scholkester op hoogwatervluchplaatsen op Terschelling*. Report Projectgroep Wadden, L.H. Wageningen. 261pp.

levels. However, the location and habitat type of such alternative destinations must be carefully selected to be effective.

- 4.8 The issue of recreational pressure along the Solent coastline is addressed in the Solent Recreation Mitigation Strategy⁵⁴ and on the website <http://www.birdaware.org/>. The visitor surveys undertaken to inform the mitigation strategy identified that all net new housing within 5.6km of the Solent European sites would result in recreational impacts that require mitigation.
- 4.9 In summary, the available baseline information suggests that the Chichester and Langstone Harbours SPA / Ramsar is vulnerable to recreational pressure because of the risk of disturbance to overwintering waterfowl and wader species (e.g. dark-bellied brent goose, dunlin, curlew). Furthermore, the ground-nesting terns are particularly sensitive to recreational pressure, particularly to trampling damage and negative impacts from dog walkers. The SPA / Ramsar directly abuts Southbourne Parish and the implementation of the SNP may lead to an increase in recreational pressure, particularly because distance from home is one of the primary predictors of visitation.
- 4.10 Overall, the following European sites within 10km of Southbourne Parish are sensitive to recreational pressure arising from NP development (the sites in bold are taken forward into the following chapters):
- **Chichester and Langstone Harbours SPA / Ramsar (adjoining the southern border of Southbourne Parish)**
 - **Solent Maritime SAC (adjoining the southern border of Southbourne Parish)**

Water Quality

- 4.11 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:
- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
 - Eutrophication, the enrichment of water with nutrients, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing bioavailable nitrogen.
 - Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.
- 4.12 The most notable issue in relation to the Southbourne NP is the discharge of treated sewage effluent, which is likely to increase the concentration of nutrients (particularly nitrogen) in local watercourses that feed into Solent's European sites. Nitrogen is the main limiting nutrient in marine ecosystems and may cause eutrophication at high loadings. The Solent Maritime SAC is designated for habitats and the Desmoulin's whorl snail, which are all sensitive to an increase in nutrient loadings. Given that Southbourne Parish lies adjacent to the SAC, impacts on the water quality due to surface water runoff from hardstanding within Southbourne also needs consideration. The NP assessed in this report provides for development in the geographic area covered by Portsmouth Water (responsible for the public water supply) and Southern Water (responsible for wastewater treatment). The potential implications of this development are outlined in Table 2.

⁵⁴ Bird Aware Solent. (2017) Solent Recreation Mitigation Strategy. December 2017.

Table 2: Wastewater Treatment Works serving development in Southbourne Parish that are in hydrological continuity with the Solent, in particular the Chichester and Langstone Harbours SPA / Ramsar, and the Solent Maritime SAC.

WwTW Catchment	Residential development allocated in the Southbourne Neighbourhood Plan	HRA implications
Thornham WwTW (operated by Southern Water)	199 new residential dwellings on Land North of Cooks Lane, Southbourne	Discharge of treated sewage effluent into local watercourses including Lumley and Ham Brook streams, ultimately feeding into the Solent

4.13 A large proportion of Solent’s coastal waters are in unfavourable condition, primarily due to excessive macroalgal growth resulting from eutrophic conditions. Therefore, in late 2019, Natural England introduced a nutrient neutrality requirement for all residential development in the catchment of Solent’s European sites. The rationale behind this approach is that, in order to be granted planning consent, developments should contribute no net additional nitrogen to the relevant hydrological catchments. A review of the report to inform the screening HRA supporting the planning application⁵⁵ indicates that nutrient neutrality was not assessed at the time of the initial application.

4.14 The following European sites within 10km of Southbourne Parish are sensitive to changes in water quality as a result of NP development (the sites in bold are taken forward into the following chapters):

- **Chichester and Langstone Harbours SPA / Ramsar (directly adjacent to Southbourne Parish)**
- **Solent Maritime SAC (directly adjacent to Southbourne Parish, largely contiguous with the Chichester and Langstone Harbours SPA / Ramsar)**

Water Level

4.15 The water level, its flow rates and the mixing conditions are important determinants of the condition of European sites and its qualifying features. Hydrological processes are critical in influencing habitat characteristics in coastal waters, including current velocity, water depth, dissolved oxygen levels, salinity and water temperature. In turn these parameters determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition.

4.16 The Solent Maritime SAC includes habitats and species that are likely to be sensitive to changes in water level, oxygen concentration, salinity and turbidity. The primary mechanism by which the Southbourne NP could affect this would be through reducing the volume of freshwater supplied by local watercourses – most likely due to increased water abstraction to meet an increased demand across Southbourne’s population. For example, the estuary, and the sand- and mudflat habitats are sensitive to changes in water flow rates that could lead to sediment accretion or erosion in certain locations. Similarly, the Atlantic salt meadow component might be sensitive to a reduction in water flow rates because of increased sediment deposition in the habitat. Changes to the water flow rate within an estuary can be associated with a multitude of further impact pathways, including substratum loss, smothering and changes in wave exposure, and often interact with coastal squeeze.

4.17 The following European sites within 10km of Southbourne Parish are sensitive to changes in the water level, quantity and flow as a result of NP development (the sites in bold are taken forward into the following chapters):

⁵⁵ Available online at: <https://publicaccess.chichester.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=PIUGKXER0UX00&documentOrdering.orderBy=date&documentOrdering.orderDirection=ascending> [Accessed on the 21/07/2022]

- **Solent Maritime SAC (directly adjacent to the southern border of Southbourne Parish)**
- **Chichester and Langstone Harbours SPA / Ramsar (directly adjoining the southern border of Southbourne Parish)**

Loss of Functionally Linked Habitat

- 4.18 While most European sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not always the case. A diverse array of qualifying species including birds, bats and amphibians are not limited to the boundary of designated sites.
- 4.19 For example, the highly mobile nature of both wildfowl and waders implies that areas of habitat of crucial importance to the bird populations lie outside the physical limits of European sites. Despite not being included in the designation, these supporting habitats are integral to the maintenance of the coherent structure and function of European sites. Therefore, land use plans that may result in the loss of functionally linked habitats require further assessment.
- 4.20 There is now an abundance of authoritative examples of HRA cases on plans affecting bird populations, where Natural England recognised the potential importance of functionally linked habitat⁵⁶. For example, bird surveys in relation to a previous HRA established that approximately 25% of the golden plover population in the Somerset Levels and Moors SPA had the potential to be impacted while utilising functionally linked habitats, and this required the inclusion of mitigation measures in the relevant plan policy wording. Another important case study originates from the Mersey Estuary SPA / Ramsar, where adjacent functionally linked habitat parcels had a peak survey count of 108% of the 5-year mean peak population of golden plover. This also led to considerable amendments in the planning proposal to ensure that site integrity was not adversely affected.
- 4.21 Functionally linked habitat parcels may not be known prior to undertaking appraisals. An assessment of existing data sources (e.g. bird atlases showing species distributions, Environmental Record Centre data, results from bespoke bird surveys) might be required to firmly establish functional linkage to European sites. In some instances data may not be available at all, requiring further survey work.
- 4.22 The Chichester and Langstone Harbours SPA / Ramsar is designated for its assemblage of overwintering waterfowl and waders. Dark-bellied brent geese are most dependent on functionally linked amenity grassland and arable land for foraging. However, numerous wader species are known to roost in grassland adjacent to the coast in high-tide conditions. The importance of functionally linked habitat outside Solent's European sites to the survival of brent geese and waders, has resulted in the implementation of the Solent Waders and Brent Goose Strategy (SWBGS), which maps parcels of importance for SPA / Ramsar species inland from the coastline. The strategy assigns each supporting habitat to one of the following categories: 'Primary Support Area', 'Secondary Support Area', 'Low Use' and 'Candidate', based on a number of criteria.
- 4.23 Clearly, residential and employment development within Southbourne Parish, which lies immediately inland from the SPA / Ramsar, has the potential to result in the loss of functionally linked habitat for SPA / Ramsar birds. The following European site within 10km of Southbourne Parish is sensitive to the loss of functionally linked habitat as a result of NP development (the site in bold is taken forward into the following chapters):
- **Chichester and Langstone Harbours SPA / Ramsar (located directly adjacent to the southern boundary of Southbourne Parish)**

⁵⁶ Chapman C & Tyldesley D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – A review of authoritative decisions. **Natural England Commissioned Reports** 207: 73pp.

Atmospheric Pollution (through Nitrogen Deposition)

4.24 The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂) and are summarised in Table 3. Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges⁵⁷. NO_x can also be toxic at very high concentrations (far above the annual average Critical Level). However, in particular, high levels of NO_x and NH₃ are likely to increase the total nitrogen (N) deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere is widely known to enhance soil fertility, potentially causing eutrophication. This often has adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats^{58 59}.

Table 3: Main sources and effects of air pollutants on habitats and species⁶⁰

Pollutant	Source	Effects on habitats and species
Sulphur Dioxide (SO ₂)	<p>The main sources of SO₂ are electricity generation, and industrial and domestic fuel combustion. However, total SO₂ emissions in the UK have decreased substantially since the 1980's.</p> <p>Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO₂ have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO₂ emissions in the UK.</p>	<p>Wet and dry deposition of SO₂ acidifies soils and freshwater, and may alter the composition of plant and animal communities.</p> <p>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.</p> <p>However, SO₂ background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.</p>
Acid deposition	<p>Leads to acidification of soils and freshwater via atmospheric deposition of SO₂, NO_x, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.</p> <p>Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.</p>	<p>Gaseous precursors (e.g. SO₂) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.</p> <p>Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants.</p> <p>Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.</p>
Ammonia (NH ₃)	<p>Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.</p> <p>Ammonia reacts with acid pollutants such as the products of SO₂ and NO_x emissions to produce fine</p>	<p>The negative effect of NH₄⁺ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation.</p> <p>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in</p>

⁵⁷ http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm, accessed 01/04/2020.

⁵⁸ Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. **2006**. Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* 38: 161-176

⁵⁹ Dijk, N. **2011**. Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation *Global Change Biology* 17: 3589-3607

⁶⁰ Information summarised from the Air Pollution Information System (<http://www.apis.ac.uk/>)

Pollutant	Source	Effects on habitats and species
	<p>ammonium (NH₄⁺) - containing aerosol. Due to its significantly longer lifetime, NH₄⁺ may be transferred much longer distances (and can therefore be a significant trans-boundary issue).</p> <p>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.</p>	<p>dominance from heath species (lichens, mosses) to grasses is often seen.</p> <p>As emissions mostly occur at ground level in the rural environment and NH₃ is rapidly deposited, some of the most acute problems of NH₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.</p>
Nitrogen oxides (NO _x)	<p>Nitrogen oxides are mostly produced in combustion processes. Half of NO_x emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.</p> <p>In contrast to the steep decline in Sulphur dioxide emissions, nitrogen oxides are falling more due to control strategies being offset by increasing numbers of vehicles.</p>	<p>Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NO_x for all vegetation types has been set to 30 ug/m³.</p> <p>Deposition of nitrogen compounds (nitrates (NO₃), nitrogen dioxide (NO₂) and nitric acid (HNO₃)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.</p> <p>In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.</p>
Nitrogen deposition	<p>The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_x) or reduced (e.g. NH₃) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.</p> <p>The N pollutants together are a large contributor to acidification (see above).</p>	<p>All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.</p> <p>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.</p> <p>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.</p>
Ozone (O ₃)	<p>A secondary pollutant generated by photochemical reactions involving NO_x, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).</p> <p>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.</p>	<p>Concentrations of O₃ above 40 ppb can be toxic to both humans and wildlife, and can affect buildings.</p> <p>High O₃ concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.</p>

4.25 SO₂ emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as (particularly on a local scale) shipping⁶¹. NH₃ emissions originate from agricultural practices⁶², with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO₂ or NH₃ emissions will be associated with the SNP.

4.26 NO_x emissions, however, are dominated by the output of vehicle exhausts (accounting for more than half of all NO_x emissions). A 'typical' housing development will contribute by far the largest

⁶¹ http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.

⁶² Pain, B.F.; Weerden, T.J.; Chambers, B.J.; Phillips, V.R.; Jarvis, S.C. 1998. A new inventory for ammonia emissions from U.K. agriculture. Atmospheric Environment 32: 309-313

portion to its overall NOx footprint (92%) through its associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison⁶³. Therefore, emissions of NOx could be reasonably expected to increase because of a higher number of vehicles due to implementation of the SNP.

- 4.27 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 $\mu\text{g}/\text{m}^3$; the threshold for sulphur dioxide is 20 $\mu\text{g}/\text{m}^3$. In addition, ecological studies have determined Critical Loads⁶⁴ of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH_3).
- 4.28 The Department of Transport's Transport Analysis Guidance stipulates that, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant⁶⁵ (Figure 3). This is the distance that has been used throughout this report in order to determine whether European sites are likely to be impacted by development outlined in the SNP.

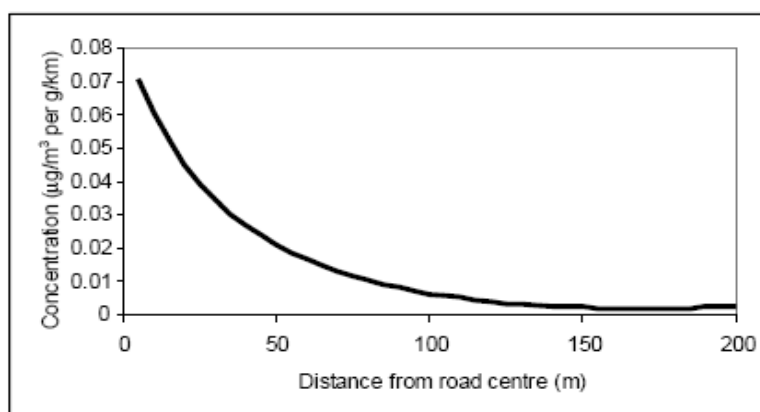


Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT⁶⁶)

- 4.29 The Chichester and Langstone Harbours SPA's / Ramsar's sensitivity to atmospheric pollution depends on the qualifying feature that is being assessed. Many waterfowl and wader species are not sensitive to atmospheric nitrogen deposition. Instead, species such as Eurasian teal and Northern pintail may benefit from additional nitrogen due to positive effects on their food supply. In contrast, breeding terns are sensitive to nitrogen deposition because they nest in scrapes on bare ground, such as vegetated shingle and sand dune habitat. The Air Pollution Information System (APIS) identifies a nitrogen Critical Load of 8-10 kg N/ha/yr (the nitrogen Critical Load class of acidic coastal stable dune grasslands). Likely consequences of exceedance impacts include an increase in tall grasses, a decline in plant diversity, N leaching and soil acidification.
- 4.30 Most qualifying habitats and species of the Solent Maritime SAC have relatively low sensitivity to nitrogen deposition. The most sensitive feature is the perennial vegetation of stony banks (nitrogen Critical Load of 8-15 kg N/ha/yr). However, APIS identifies that this vegetation has different successional stages and other (higher) Critical Loads may apply. Other qualifying features, such as estuaries, coastal lagoons, *Salicornia* and Atlantic salt meadows have a lower sensitivity to nitrogen deposition (a Critical Load of 20-30 kg N/ha/yr applies to all of these).
- 4.31 Overall, the following European sites adjoining Southbourne Parish are sensitive to atmospheric pollution and are likely to be linked to development in the Parish (sites in bold are taken forward into the following chapters):
- **Chichester and Langstone Harbours SPA / Ramsar (directly adjacent to the southern border of Southbourne Parish)**

⁶³ Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

⁶⁴ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.

⁶⁵ <http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013> [Accessed on the 01/04/2020]

⁶⁶ <http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf> [Accessed on the 01/04/2020]

- **Solent Maritime SAC (directly adjacent to the southern border of Southbourne Parish and largely contiguous with the Chichester and Langstone Harbours SPA / Ramsar)**

5. Test of Likely Significant Effects (LSEs)

Introduction

5.1 The initial scoping of impact pathways and relevant European sites identified that the following require consideration:

Recreational Pressure

- Solent Maritime SAC
- Chichester and Langstone Harbours SPA / Ramsar

Water Quality

- Solent Maritime SAC
- Chichester and Langstone Harbours SPA / Ramsar

Water Level

- Solent Maritime SAC
- Chichester and Langstone Harbours SPA / Ramsar

Loss of Functionally Linked Habitat

- Chichester and Langstone Harbours SPA / Ramsar

Atmospheric Pollution

- Solent Maritime SAC
- Chichester and Langstone Harbours SPA / Ramsar

5.2 The policies contained within the SNP are screened for their Likely Significant Effects (LSEs) on European sites in Appendix A. **Error! Reference source not found.** below shows Southbourne Parish in relation to the European sites identified above.

Figure 4: Southbourne Parish in relation to identified European Sites.

Recreational Pressure

Solent Maritime SAC & Chichester and Langstone Harbours SPA / Ramsar

- 5.3 The following policy has the potential to result in LSEs regarding the impact pathway recreational pressure:
- 5.4 **Policy SB2 – Land North of Cooks Lane, Southbourne** (provides for 199 new dwellings in Southbourne Parish)The residential site included in the Southbourne NP allocates 199 new homes, which are likely to result in an increase in recreational demand on nearby greenspaces. The parish immediately adjoins the Chichester and Langstone Harbours SPA / Ramsar and the allocated site lies approx. 1.1km from the European site, which is within the distance that people may walk from home to undertake recreational activities. The distances walked from home are likely to differ between user groups. For example, dog walkers typically undertake frequent and short walks near their home, whereas birdwatchers or people on family outings, are likely to travel further and spend more time at their destinations. The relatively short distance between the residential site and the SPA / Ramsar and the attractiveness of the latter likely mean that the Chichester and Langstone Harbours SPA / Ramsar will be a key recreational resource for new residents.
- 5.5 The Chichester and Langstone Harbours SPA / Ramsar is a European site designated for overwintering waders and waterfowl, as well as for ground-nesting terns. Policies that directly influence the number of people living within close proximity to the SPA / Ramsar have the potential for LSEs by causing disturbance to these birds. The terns are particularly sensitive to recreational pressure, especially from people that walk their dogs off-lead. Any prolonged increase in recreational pressure might affect the long-term survival of these qualifying species, ultimately causing adverse effects on site integrity.
- 5.6 However, it is noted that the site received outline planning consent in March 2020 and is now at the reserved matters stage. To receive planning consent, the application would have been accompanied by an HRA that considers recreational pressure, both alone and in-combination. This will have identified the mitigation measures that are required to prevent adverse effects on the integrity of the Chichester and Langstone Harbours SPA / Ramsar. Indeed, Policy SB2 (Land North of Cooks Lane, Southbourne) stipulates that '*Financial contributions are made towards Recreation Disturbance Mitigation in respect of the Chichester Harbour Special Protection Area*' and goes on to state that contributions are also required '*towards the cost of delivering a new 3G pitch at Bourne Community College.*' This indicates that the issue of recreational pressure was adequately appraised in its original HRA.
- 5.7 Overall, the SNP proposes no additional unconsented residential growth. Therefore, LSEs of the SNP on the Chichester and Langstone Harbours SPA / Ramsar regarding recreational pressure can be excluded. The site is screened out from Appropriate Assessment in relation to this impact pathway.

Water Quality

Solent Maritime SAC & Chichester and Langstone Harbours SPA / Ramsar

- 5.8 The following policy has the potential to result LSEs regarding the impact pathway water quality:
- Policy SB2 – Land North of Cooks Lane, Southbourne (provides for 199 new dwellings in Southbourne Parish)
 - Policy SB11 – Land for Expanding Education & Recreational Uses (allocates land to the west of Bourne Community College for outdoor educational and recreational uses, including any ancillary buildings required)

- 5.9 As discussed earlier in this report, several European sites in the Solent are sensitive to changes in water quality, specifically excess nitrogen input. In relation to the Southbourne NP area, the geographically closest European sites are the Solent Maritime SAC and the Chichester and Langstone Harbours SPA / Ramsar. Importantly, the Wastewater Treatment Works (WwTW) responsible for sewage treatment in Southbourne Parish lies directly adjacent to these European sites and treated sewage effluent could result in increased nitrogen input into the Solent. In line with the Dutch Nitrogen Case, where a site fails to achieve good chemical status, nitrogen input from any new development must therefore be limited.
- 5.10 While it is noted that the allocation Land North of Cooks Lane, Southbourne has received outline planning consent, its accompanying HRA would have pre-dated the issue of nutrient neutrality in the Solent. Natural England have advised that any new residential development should not result in net additional nitrogen input to Solent's European sites. Given that this issue was not assessed previously, LSEs of Policy SB2 cannot be excluded and the SNP is screened in for Appropriate Assessment regarding water quality.

Water Quantity, Level and Flow

Solent Maritime SAC & Chichester and Langstone Harbours SPA / Ramsar

- 5.11 The following policies have the potential to result LSEs regarding the impact pathway water quantity, level and flow:
- Policy SB2 – Land North of Cooks Lane, Southbourne (provides for 199 new dwellings in Southbourne Parish)
 - Policy SB11 – Land for Expanding Education & Recreational Uses (allocates land to the west of Bourne Community College for outdoor educational and recreational uses, including any ancillary buildings required)
- 5.12 The Solent Maritime SAC depends on an appropriate amount of freshwater input to maintain its salinity at suitable levels for the Desmoulin's whorl snail. Furthermore, the integrity of many of its qualifying habitats (e.g. the intertidal mudflats) and ultimately the qualifying species of the overlapping Chichester and Langstone Harbours SPA / Ramsar depend on the maintenance of natural variation in factors such as sediment mixing, siltation and turbidity.
- 5.13 Excessive changes in the water level of European sites are most likely to be caused by increased water abstraction rates for meeting an increased public water demand. Water companies are legally required to supply all new housing and employment development with potable water, while preventing significant reductions in freshwater supply to hydrologically sensitive designated sites. However, Land North of Cooks Lane, the only policy proposing housing development, has already been consented and the accompanying HRA would have considered potential impacts in relation to water abstraction. Therefore, this impact is not assessed further.
- 5.14 An increase in the extent of impermeable urban surfaces is also associated with increased volumes and accelerate runoff of surface water, with potential impacts on estuarine habitats and species. Southbourne Parish lies adjoins the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar, making it likely that increased surface runoff will reach these sites. The residential allocation included in the SNP has already obtained planning consent. Due consideration to surface runoff would have been given in the accompanying HRA. Indeed, Policy SB2 requires the following: '*The landscape scheme includes a north-south swale alongside the spine road through the development, to assist surface water drainage...*' This is an example of a Sustainable Drainage System (SuDS), which reduces the volume and velocity of surface runoff to greenfield rates by providing an interim storage and filtration system.
- 5.15 Notwithstanding this, additional land is allocated for educational and recreational uses, including ancillary buildings. These would increase the coverage of impermeable surfaces and the potential for accelerated surface runoff. Therefore, LSEs of the SNP on the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar regarding surface runoff cannot be excluded. These sites are screened in for Appropriate Assessment in relation to this impact pathway.

Loss of Functionally Linked Habitat

Chichester and Langstone Harbours SPA / Ramsar

5.16 The following policy has the potential to result in LSEs regarding the impact pathway loss of functionally linked habitat:

- Policy SB2 – Land North of Cooks Lane, Southbourne (provides for 199 new dwellings in Southbourne Parish)
- Policy SB11: Land for Expanding Education & Recreational Uses (allocates land to the west of Bourne Community College for outdoor educational and recreational uses, including any ancillary buildings required)

5.17 The Chichester and Langstone Harbours SPA / Ramsar is partly designated for its overwintering populations of dark-bellied brent geese and a variety of other waterfowl and wader species, as well as a waterbird assemblage of European importance. Dark-bellied brent geese rely on functionally linked habitats (mainly amenity grassland and cereal crops for foraging) outside the designated site boundary. The use of habitats outside the SPA / Ramsar by the geese has resulted in the Solent Waders and Brent Goose Strategy (SWBGS) and is mapped online⁶⁷. The data provide an extensive evidence base that should inform in-depth assessments of proposed development sites that may also be functionally linked to the Chichester and Langstone Harbours SPA / Ramsar. Furthermore, Natural England's Supplementary Advice⁶⁸ for the SPA / Ramsar highlights that some supporting habitats for **all** qualifying species potentially lie outside the site boundary and must be kept in suitable condition for the SPA / Ramsar bird species. The 199 dwellings on Land North of Cooks Lane have received outline planning consent and the supporting HRA would have considered the potential loss of supporting habitat. Therefore, the site is not reassessed in relation to this impact pathway.

5.18 Southbourne Parish lies directly adjacent to the Chichester and Langstone Harbours SPA / Ramsar. SPA / Ramsar birds are most likely to use suitable land parcels close to the European site to minimise energy lost in flight. Therefore, provided that suitable habitats are available, Southbourne Parish is likely to be one of the primary off-site supporting areas for qualifying SPA / Ramsar bird species. This impact pathway requires further consideration in relation to the land allocated for educational and recreational purposes (Policy SB11).

5.19 Therefore, LSEs of the Southbourne NP on the Chichester and Langstone Harbours SPA / Ramsar regarding the loss of functionally linked habitat cannot be excluded. The site is screened in for Appropriate Assessment.

Atmospheric Pollution

5.20 The following policy has the potential to result in LSEs regarding the impact pathway atmospheric pollution:

- Policy SB2 – Land North of Cooks Lane, Southbourne (provides for 199 new dwellings in Southbourne Parish)

Chichester and Langstone Harbours SPA / Ramsar

5.21 As identified in the previous chapter on impact pathways, the Chichester and Langstone Harbours SPA / Ramsar is sensitive to atmospheric pollution primarily due to its ground-nesting terns which rely on vegetated shingle, sand dunes or other bare ground nesting habitats. Atmospheric nitrogen deposition beyond the nitrogen Critical Load (APIS identifies 8-10 kg N/ha/yr for coastal stable dune grasslands, the most sensitive habitat potentially used by terns)

⁶⁷ The bird distribution data underpinning the strategy can be accessed at: <https://solentwbgs.wordpress.com/page-2/>
[Accessed on the 12/08/2020]

⁶⁸ Available at:

<https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9011011&SiteName=Chichester&SiteNameDisplay=Chichester+and+Langstone+Harbours+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=18> [Accessed on the 12/08/2020]

may lead to excessive vegetation growth and, ultimately to the loss of valuable nesting opportunities.

5.22 However, the SNP proposes no residential and employment development in addition to that which has already been consented. The 199 dwellings on Land North of Cooks Lane, Southbourne (Policy SB2) have received outline planning consent and the accompanying HRA would have considered traffic-related atmospheric pollution impacts. Overall, given that the SNP proposes no additional development with the potential to increase traffic flows, LSEs on the Chichester and Langstone Harbours SPA / Ramsar regarding atmospheric pollution can be excluded. The site is screened out from Appropriate Assessment in relation to this impact pathway.

a.

b.

Solent Maritime SAC

5.23 The Solent Maritime SAC largely overlaps with the Chichester and Langstone Harbours SPA / Ramsar. As discussed in the background section on impact pathways (see Chapter 4), the Solent Maritime SAC is designated for a range of habitats, all of which are sensitive to atmospheric nitrogen deposition. However, the most sensitive habitats (perennial vegetation of stony banks – Critical Load of 8-15 kg N/ha/yr; shifting dunes with *Ammophila arenaria* – 10-20 kg N/ha/yr) only occur locally in small patches. The most widely distributed qualifying habitats that are sensitive to nitrogen deposition are the Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) and *Salicornia*, both of which have nitrogen Critical Loads of 20-30 kg N/ha/yr.

5.24 However, given that the SNP proposes no additional development with the potential to increase traffic flows (apart of the 199 dwellings that have obtained planning consent), LSEs on the Solent Maritime SAC regarding atmospheric pollution can be excluded. The site is screened out from Appropriate Assessment in relation to this impact pathway.

6. Appropriate Assessment

Introduction

- 6.1 The law does not prescribe how an analysis to inform Appropriate Assessment (AA) should be undertaken or presented but the AA must consider all impact pathways that have been screened in, whether they are due to policies alone or to impact pathways that arise in-combination with other projects and plans. That analysis is the purpose of this section. The law does not require the 'alone' and 'in combination' effects to be examined separately provided all effects are discussed.
- 6.2 The Southbourne NP allocates 199 dwellings on Land North of Cooks Lane and this extent of growth is large enough to have the potential for Likely Significant Effects (LSEs) alone, such as may be the case regarding the impact pathways water quality and loss of functionally linked habitat (discussed below). Furthermore, LSEs must also be discussed in-combination, taking account of the growth in parishes surrounding Southbourne Parish. The CLP provides for 12,478 new dwellings between 2016 and 2035, some of which lie in neighbouring parishes. Therefore, the CLP provides an appropriate starting point to assess in-combination effects on European sites.
- 6.3 The screening exercise undertaken in Chapter 5 and Appendix A **Error! Reference source not found.** indicates two policies (Policies SB2 and SB11) for which LSEs on European Sites cannot be excluded, including the impact pathways water quality, water quantity, level and flow and loss of functionally linked habitat. . Notably, the SNP has the potential to arise in adverse effects 'alone', particularly in relation to the impact pathways water quality (nitrogen neutrality) and loss of functionally linked habitat.

6.4

Water Quality

Solent Maritime SAC & Chichester and Langstone Harbours SPA / Ramsar

- 6.5 The Solent region is one of the most important refuges for wildlife in the United Kingdom, particularly overwintering birds of European importance, and comprises several European designated sites, including the Chichester and Langstone Harbours SPA / Ramsar directly adjoining Southbourne Parish. The high level of nitrogen, deriving mostly from treated wastewater and agriculture, are currently adversely affecting the water quality in these designated sites by causing eutrophication. While the qualifying bird species of the SPA / Ramsar are not directly sensitive to nitrogen, changes in the water quality have the potential to reduce the viability of the birds via cascading effects on their food chains. Therefore, it is considered that a further deterioration of water quality would represent a risk to the long-term integrity of Solent's European sites.
- 6.6 The Solent Maritime SAC is designated for a range of habitats and the Desmoulin's whorl snail *Vertigo moulinsiana*. These qualifying features, to varying degrees, are all sensitive to negative changes in water quality. It is considered that the Atlantic salt meadows and annual species (e.g. *Salicornia*) are most likely to be affected by the discharge of treated sewage effluent. As highlighted in the previous section, nitrogen is the main limiting nutrient in the marine environment and Wastewater Treatment Works (WwTWs) are one of its most important contributors.
- 6.7 The Environment Agency Catchment Data Explorer identified that Southbourne Parish is situated near the outer edge of the Arun and Western Streams management catchment. Of the 40 water bodies in the catchment feeding into the Solent Maritime SAC, a large proportion of streams are not in good ecological status (2 water bodies in bad, 12 water bodies in poor and 24 water bodies in moderate condition). The predominant reason given for not achieving good water quality status

is treated wastewater effluent. Furthermore, many of the qualifying habitats are in unfavourable condition (e.g. 100% of its sandbanks). Given the short distance between the WwTW responsible for Southbourne Parish and the SAC, it is unlikely that natural attenuation processes will prevent most of the nutrients from reaching the intertidal habitats. This evidence highlights the importance for preventing a further deterioration in water quality of Solent's European sites, especially the Solent Maritime SAC.

- 6.8 An Integrated Water Management Study (IWMS) was commissioned by the Partnership for Urban South Hampshire (PUSH) and demonstrated that there is considerable uncertainty whether new housing development, particularly after 2020, can be accommodated without having a detrimental effect on the water environment. It is also doubtful whether the proposed upgrades to WwTWs will be sufficient to adequately protect the Solent from adverse impacts caused by treated sewage effluent. A review of evidence relating to designated sites in summer 2018, highlighted that many sites are classified as having unfavourable conservation status and are thus at risk from additional nutrient input.
- 6.9 The 2018 Designated Sites review related the measured nitrogen levels in Solent's harbours to the distribution of phytoplankton and macroalgae, most importantly the percentage cover of opportunistic green macroalgae. The Chichester and Langstone Harbours SPA / Ramsar, the designated site most relevant to residential growth in Southbourne, is largely designated as unfavourable (due to macroalgal cover being > 75%) but recovering, as a large amount of wastewater, and therefore nutrients, is currently being diverted elsewhere.
- 6.10 A significant increase in nutrient supply to the SAC and SPA / Ramsar might also lead to a reduction in dissolved oxygen concentrations through eutrophication (for example through the excessive growth of algal mats). Most qualifying features are sensitive to reduced DO concentrations, especially in the summer months. NE advises that the DO concentrations in the SAC should be kept at or above 5.7mg/l for 95% of the year. Regular monitoring under the Water Framework Directive (WFD) shows that the SAC has been classified as 'High Ecological Status' for at least 5 years since 2009. Notwithstanding the Southbourne NP, DO levels are not considered to be a current issue for these European sites.
- 6.11 To help mitigate the water quality crisis, Natural England (NE) has introduced several measures. For example, Defra's Catchment Sensitive Farming (CSF) programme works with farmers to reduce diffuse pollution from fertiliser and slurry run-off. Furthermore, Southern Water is upgrading their sewage treatment works to reduce the amount of phosphorus in sewage effluent. However, it is now known that the dissolved total nitrogen concentration / volume (both organic and inorganic forms) is the main driver of eutrophication in the marine environment, implying that upgrades to reduce phosphorus concentrations in treated sewage effluent are unlikely to adequately improve the conditions in Chichester Harbour.
- 6.12 NE now advises that new development in the Solent catchment must achieve nutrient neutrality, demonstrated through nitrogen budget calculations, to ensure that there is no net additional nitrogen input to the Solent. While the site allocated under Policy SB2 would have been previously taken into consideration regarding the consented discharge from Thornham WwTW, it has not been subject to nutrient neutrality assessment. Nutrient neutrality is calculated using key assumptions based on the most recent scientific evidence and research. They must be completed for all sites that will result in a net increase in population (i.e. residential homes, student accommodation, tourism attractions), and commercial / industrial sites with a change in land use that is likely to increase nitrogen output (e.g. pig / poultry farms and industrial facilities). A series of Advice Notes on achieving nutrient neutrality for residential development have been published by NE, the latest one dating to February 2022 and comprising a generic methodology for determining nutrient neutrality⁶⁹. Furthermore, site-specific calculators and accompanying guidance documents have also been published for many European sites including the wider Solent region⁷⁰. Both the generic and site-specific methodologies effectively set out the following four calculation stages:

⁶⁹ Ricardo & Natural England. (February 2022). Nutrient Neutrality Generic Methodology. 37pp. Available at: https://www.chichester.gov.uk/media/36718/Nutrient-Neutrality-Generic-Methodology/pdf/Nutrient_Neutrality_Generic_Methodology.pdf [Accessed on the 18/07/2022]

⁷⁰ The nutrient budget calculator is available on the Chichester District Council website at: <https://www.chichester.gov.uk/nutrientneutrality>. The accompanying guidance document has been prepared by Ricardo Energy

- Stage 1: Nutrient loading from future additional treated wastewater (this stage considers the number of residential units to be delivered, additional population generated using the national average occupancy rate, daily water usage per person and permits of receiving WWTWs);
- Stage 2: Loss of existing nutrient loading from the conversion of current land uses (this stage considers pre-development landcover type and area; the greatest nutrient loss is associated with converting dairy or agricultural land)
- Stage 3: Nutrient loading from future land use (this stage assesses post-development landcover type and area, including any greenspaces that are created)
- Stage 4: Total nutrient loading combining stages 1-3 and accounting for an additional 20% precautionary buffer.

6.13 The 199 dwellings allocated under **Policy SB2 (Land North of Cooks Lane, Southbourne)** represent a considerable increase in Southbourne’s population and its overall contribution of treated sewage effluent to the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar. Due to this, and to be in accordance with NE guidance, a nutrient budget for the site was calculated using the nutrient calculator available on the Chichester District Council website. The outputs of these calculations are summarised in Table 4.

Table 4: Nutrient neutrality calculation for the site allocated in the Southbourne NP.

Site allocation	Stage 1 – Nitrogen load in future wastewater effluent (kg/TN/day)	– Stage 2 – Loss of nitrogen due to conversion of existing uses (kg TN/ha/yr)	– Stage 3 – Input Nitrogen from the leachate of future land uses (kg TN/ha/yr)	– Stage 4 – Overall nutrient budget (kg TN/ha/yr)
SB2 (Land North of Cooks Lane, Southbourne)	188.40	320.73	112.94	-19.39

6.14 Importantly, the calculation of future nitrogen loading shows that allocation SB2 (Land North of Cooks Lane, Southbourne), the only site included in the NP, has a nitrogen deficit of 19.39 kg TN/ha/yr. Therefore, from a nutrient neutrality perspective the Southbourne NP will not result in additional nitrogen discharge into the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar. It should be noted that this is a preliminary nutrient calculation based on the site layout presented in the Design and Access Statement. The extent of greenspace and water features, which are associated with lower leachate rates than urban surfaces, have been taken into account in the calculation. Since any of these features are subject to change in the planning application consenting process, it is advised that this calculation should be updated as part of the reserved matters application.

6.15 The large forecast deficit is primarily due to land conversion from cereal cropping (associated with a significantly higher nitrogen leachate rate of 31.2 kg N/ha) to urban development. The nitrogen discharged in future treated wastewater effluent and leaching from urban surfaces will be more than offset by the nitrogen loss currently contributed through existing farming practices. Given the nitrogen deficit of the site, mitigation measures for the development will not be required.

6.16 The Southbourne NP also addresses the issue of nutrient neutrality in Policy SB17 (Special Protection Areas and Ramsar Sites): ‘D. *Proposals for development must also demonstrate the effectiveness of their nutrient neutrality measures to ensure no adverse impact on the Chichester*

and Environment on behalf of Natural England. (March 2022). Nutrient Budget Calculator Guidance Document. 14pp. Available at: https://www.chichester.gov.uk/media/36715/Nutrient-Budget-Calculator-Guidance/pdf/Nutrient_Budget_Calculator_Guidance.pdf [Accessed on the 18/07/2022]

*Harbour receiving waters in accordance with Natural England's latest guidance*⁷¹. This enables these calculations to be revised as necessary before any development is consented.

- 6.17 Another key prerequisite for maintaining the water quality in the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar is that the Wastewater Treatment Works (WwTW) infrastructure is sufficient to process the volume of wastewater from the future residential development⁷². As part of the Environment Agency's Review of Consents process every WwTW is issued an environmental permit for nitrogen discharge (typically in mg/l). The aim of this is to ensure that the 'in-combination' sewage effluent does not compromise the integrity of marine European sites. Therefore, planning consent may require an upgrade of the sewerage system or a more stringent level of nitrogen removal at the WwTW. Southern Water is the company for sewage treatment in Chichester District and will have to be contacted by the site promoter prior to the submission of any planning application.
- 6.18 Amec Foster Wheeler undertook a Water Quality Assessment (WQA) for Chichester District Council, the Local Planning Authority in which Southbourne Parish falls. The report assessed the growth scenarios proposed for Chichester District in the context of existing WwTW infrastructure (including Thornham WwTW) and ecological constraints. Importantly, the report determined that there is insufficient headroom at the WwTW to accommodate future growth including that proposed on Land North of Cooks Lane, Southbourne. In particular, the Dry Weather Flow (DWF) would increase from currently 6,580 to 7,460m³/d by the end of the NP period in 2035, which is well above the consented maximum DWF of 6,565m³/d. A capacity improvement at Thornham WwTW will be required to accommodate the increase in sewage from future housing development.
- 6.19 The WQA further established that a tighter nitrogen permit may be required to mitigate additional input of nitrogen into the Solent due to this increase in DWF. Several measures to improve the quality of wastewater effluent are available for consideration (although these are less cost-effective than biological denitrification). Such mitigation interventions at WwTWs may be augmented by catchment-scale approaches, such as agri-environment schemes, use of rural Sustainable Drainage Systems (SuDS) and reductions in fertiliser use. Potential upgrades at Thornham WwTW to accommodate the housing growth in Southbourne include:
- Air stripping of ammonia with high pH adjustment
 - Breakpoint chlorination of ammonia into nitrogen gas
 - Ion exchange
 - Membrane separation (e.g. nanofiltration or reverse osmosis) to remove dissolved nitrogen compounds
- 6.20 The Southbourne NP already contains policy wording that is relevant to the protection of the water quality in the Solent, although it is not included specifically to address these issues. For example, **Policy SB19 (Water Infrastructure and Flood Risk)** stipulates that development proposals will be supported provided ***'A. Development proposals will be supported, provided it can be demonstrated that, where appropriate: i. The sewer network can accommodate the additional demand for sewerage disposal either in its existing form or through planned improvements to the system to ensure sufficient wastewater treatment is in place in advance of the first occupation of the development.'*** This is a key element for the protection of water quality as it ensures that the necessary infrastructure is in place **prior** to residential development being occupied and producing wastewater. Policy wording regarding the water efficiency of residential development is also included: ***'The Water Efficiency Standard of 110 litres per person per day as set out in the National Technical Standards will be achieved in new development to reduce the volume of wastewater entering the foul sewer.'*** This part of the policy ensures that the volume of treated sewage effluent entering the Solent Maritime

⁷¹ Advice on achieving nutrient neutrality for new development in the Solent Region; Natural England, June 2020

⁷² Please note that the only site included in the Neighbourhood Plan has already obtained planning consent and adequate wastewater infrastructure would have been considered in its HRA. However, this pillar of water quality protection has been included here as a matter of completeness.

SAC and Chichester and Langstone Harbours SPA / Ramsar will be minimised in line with nationally applicable legal standards.

- 6.21 Overall, it is determined that the Southbourne NP contains policy wording that renders the plan compliant with the relevant statutory requirements. The NP ensures sufficient WwTW capacity, while also identifying that all residential developments in Southbourne Parish must achieve nutrient neutrality. In conclusion, the Southbourne NP will not result in adverse effects on the site integrity of the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar regarding water quality.

Water Quantity, Level and Flow

Solent Maritime SAC & Chichester and Langstone Harbours SPA / Ramsar

- 6.22 The Desmoulin's whorl snail, the only qualifying species of the Solent Maritime SAC, is particularly sensitive to saline conditions and thus to changes in the amount of freshwater that mixes with seawater in the tidal sections of the SAC. NE identifies that maintaining the water supply is critical to the snail and the qualifying habitats of the SAC. All qualifying features of the SAC are also sensitive to prolonged changes in turbidity due to the prevailing suspended solid concentrations. The turbidity is to be kept at natural fluctuations across all habitat features of the SAC.
- 6.23 One pathway through which the Southbourne NP might alter the saline concentration in the SAC is via changes in the volume of freshwater supplied from land sources. For example, new residential development will have to be supplied with potable water from groundwater or riverine abstractions, which could affect the hydrological regime of tributaries and – ultimately – reduce the amount of freshwater flowing into the SAC. However, as highlighted in the LSEs section, the Southbourne NP does not propose any additional residential and employment growth beyond that which is already consented. Therefore, the remainder of this report will focus on hydrological and turbidity changes as a result of increased surface runoff from impermeable urban surfaces, such as the land allocated for education and sports purposes (Policy SB11).
- 6.24 The proposed allocation on land to the west of Bourne Community College for educational and recreational purposes lies approx. 1.2km from the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar. While this is a relatively long distance, allowing for some interception to occur, potential impacts on the water level and turbidity in the Solent may occur, particularly in-combination with growth in the adjoining parishes. The Lumley and Ham Brook streams both run through Southbourne Parish and might carry some of the generated runoff into Solent's maritime sites. One of the most widely accepted measures to mitigate against surface runoff is the use of Sustainable Drainage Systems (SuDS), which provide a permeable pathway through urban surfaces and promote natural infiltration rates.
- 6.25 The Environment Agency now requires new development to incorporate SuDS, which are designed to manage surface runoff and stormwater as close to its source as possible, thereby mimicking natural drainage and encouraging infiltration and attenuation. The same systems can be used to manage the pollution potential associated with urban runoff. The Flood and Water Management Act (2010) makes it a legal requirement to install SuDS for the management of all surface water. The policy framework of the overarching Chichester District Local Plan (CDLP) has a strong focus on SuDS. Policy 40 (Sustainable Design and Construction) of the CDLP stipulates that *'For all new dwellings or for new non-domestic buildings, evidence will be required by the developer to demonstrate that all of the following criteria have been considered (proportionate to the scale of development): ... 6. The proposals include measures to adapt to climate change, such as the provision of green infrastructure, sustainable urban drainage systems, suitable shading of pedestrian routes and open spaces and drought resistant planting / landscaping.'* Policy 42 (Flood Risk and Water Management) provides further guidance on SuDS: *'All development will be required to ensure that, as a minimum, there is no net increase in surface water run-off. Priority should be given to incorporating Sustainable Drainage Systems (SuDS) to manage surface water drainage, unless it is proven that SuDS are not appropriate.'*

- 6.26 **Policy SB2 (Land North of Cooks Lane, Southbourne)**, noting that the site has already received outline planning consent and would have needed to consider surface runoff impacts, identifies sustainable drainage as a requirement for the development: *'The landscape scheme includes a north-south swale alongside the spine road through the development, to assist surface water drainage...'*
- 6.27 The only additional development included in the SNP is the land west of Bourne Community College and a risk of increased surface runoff would be associated with any ancillary buildings related to its educational and recreational uses. However, with regard to the small additional volume of surface runoff generated, the relatively long distance to the SAC and SPA / Ramsar and the protective policy framework contained in the CDLP, no additional wording for inclusion in the SNP is recommended. **Overall, it is concluded that the SNP will not result in adverse effects on the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar regarding impacts on water quantity, level and flow (both alone and in-combination).**

Loss of Functionally Linked Habitat

Chichester and Langstone Harbours SPA / Ramsar

- 6.28 Many of the Chichester and Langstone Harbour SPA's / Ramsar's qualifying species of waders and waterfowl are highly mobile and frequently travel beyond designated site boundaries. As such, there is a mismatch between habitats designated as European sites and the actual habitat requirements of relevant bird species, particularly dark-bellied Brent geese. Therefore, it has become obligatory to assess the potential of plans to result in the permanent loss of functionally linked habitat.
- 6.29 Brent geese primarily feed on eelgrass, marine algae and sea lettuce. However, they tend to move to terrestrial feeding sites at high tide. This happens particularly in harsh winters when eelgrass dies back prematurely and competition for intertidal foraging resources increases. The geese preferentially feed on short, lush grassland that provides clear sightlines. However, they may also feed on agricultural land, which may partially regenerate as grassland in winter. Aside from suitable habitat, one of the primary predictors for site selection is distance from the coast. Brent geese expend a significant amount of energy travelling between foraging sites and it is therefore assumed that they seek to minimise flight distance.
- 6.30 Waders primarily rely on functionally linked habitats outside the SPA / Ramsar as roosting grounds at high tide, when foraging in the intertidal mudflats becomes unviable. Most wader species are gregarious and roost in large numbers (dunlin aggregate in their thousands). Roosting sites include saltmarsh, shingle banks and coastal grasslands. While neither Brent geese or waders primarily forage and / or roost on agricultural land, the Solent Waders and Brent Goose Strategy (SWBGS) classifies agricultural land parcels as 'more suitable' for these bird groups. Southbourne Parish is relatively rural in nature and has a high coverage of agricultural land and, to a lesser extent, grassland. Therefore, many parts of the parish are potentially suitable as foraging and / or roosting habitat.
- 6.31 The Chichester and the Langstone Harbours SPA / Ramsar directly adjoins Southbourne Parish and it is likely that Brent geese and waders from the SPA / Ramsar routinely use suitable habitat in the parish. The distribution of the terrestrial parcels linked to the Chichester and Langstone Harbours SPA / Ramsar (and other European sites in the Solent) is mapped on the SWBGS website. Supporting habitats hold different levels of importance to SPA / Ramsar species, which is reflected in the categories of levels of usage as identified in the SWBGS, including 'Core Area', 'Primary Support Area', 'Secondary Support Area', 'Low Use' and 'Candidate' (based on species counts and other parameters). The usage categories are based on species counts – among other parameters. The SWBGS data provide the most comprehensive ecological information available for the wider Solent area, which was most recently updated in 2022.
- 6.32 A review of habitat mapping on the SWBGS website shows that the land allocated for educational and recreational uses to the west of Bourne Community College comprises part of a Secondary Support Area (C45). The SWBGS defines Secondary Support Areas as sites that meet between one and two of the following four metrics:

- GB importance (site supports more than the GB threshold for any species);
- SPA importance (site supports between 1-5% of the qualifying population of a species of the closest SPA / Ramsar site);
- SPA assemblage (site supports between 1-5% of the total of all maximum counts for all species recorded in the closest SPA / Ramsar site); and
- Local Value (site supports at least the third quartile of the local population threshold for each qualifying species in the closest SPA / Ramsar site).

6.33 Although generally used less frequently, Secondary Support Areas (SSAs) fulfil a wider support function to the ecological network of Core Areas and Primary Support Areas, particularly at times when wader and brent geese populations are more abundant or the number of juveniles is higher. Together, SSAs are considered essential to maintaining a long-term, permanent network of supporting habitats. The SWBGS states that the loss of or damage to SSAs should be avoided and on-site mitigation provided where possible.

6.34 However, several factors in relation to this allocation should be considered. Firstly, the proposed allocation only covers approx. 5.1ha (roughly 8%) of SSA C45, which has a total area of 63.45ha. The remaining 58.35ha would continue to fulfil their role as roosting or foraging habitat even if the allocation was delivered without mitigation. Furthermore, as demonstrated elsewhere in the Solent area (e.g. Southsea Common), recreational use does not preclude the ability of a site to fulfil a supporting role. Despite being subject to high recreational footfall, Southsea Common is nonetheless designated as a Core Area, the most important supporting role a land parcel can have. Recreational use, such as by sports clubs associated with the college, of land allocated under Policy SB11 would only be intermittent and SPA / Ramsar birds would be able to continue using the sports pitches when not in use.

6.35 Considering the limited importance of C45 to Solent's overwintering bird populations, and the relatively small and intermittent loss of foraging habitat, it is concluded that the SNP will not result in adverse effects on the integrity of the Chichester and Langstone Harbours SPA / Ramsar regarding loss of functionally linked habitat. No recommendations for additional policy wording are made in relation to this impact pathway.

c.

7. Conclusions

- 7.1 This report to inform the HRA assessed the potential of the SNP to result in LSEs and, where applicable, adverse effects on the integrity of the Solent Maritime SAC and Chichester and Langstone Harbours SPA / Ramsar. It considered the impact pathways recreational pressure, water quality, water quantity, level and flow, loss of functionally linked habitat and atmospheric pollution. LSEs of Policy SB2 (Land North of Cooks Lane, Southbourne) regarding recreational pressure and atmospheric pollution were excluded on the basis that the allocation has received outline planning consent and the accompanying HRA would have had to address these threats. However, an analysis to inform the Appropriate Assessment in relation to the impact pathways water quality, water level and loss of functionally linked habitat was undertaken. The following paragraphs summarise the main findings and conclusions of this assessment.
- 7.2 Natural England has identified that the European sites in the Solent are under threat from excessive macroalgal growth and associated eutrophication. Therefore, all strategic development plans in the catchment of the wider Solent area are required to achieve nitrogen neutrality. The 199 dwellings allocated under Policy SB2 (Land North of Cooks Lane, Southbourne) will increase the volume of treated sewage effluent discharged from Thornham WwTW, with the potential for negative impacts on the Solent Maritime SAC and Chichester & Langstone Harbours SPA / Ramsar 'alone'. Notwithstanding this, the nutrient calculation for the allocation shows that it will result in a deficit of 19.39 kg TN/ha/yr, primarily due to the conversion of cereal cropping to urban residential land use. Overall, it is concluded that mitigation measures are not required and the SNP will not result in adverse effects on the integrity of Solent's European sites.
- 7.3 The only element of the SNP with the potential to impact the water quantity, level and flow in the Solent is the land allocated under Policy SB11 for educational and recreational uses, including ancillary buildings. This policy is likely to increase the coverage of impermeable surfaces in the parish, increasing the volume and velocity of surface water runoff into the Solent. However, a potential for adverse effects on site integrity was excluded based on the small additional volume of surface runoff likely to be generated, the relatively long distance to the SAC and SPA / Ramsar (approx. 1.2km) and the protective policy framework contained in the CDLP (Policies 40 and 42).
- 7.4 Policy SB11 (Land for Expanding Education & Recreational Uses) allocates a greenfield site to the west of Bourne Community College for various outdoor uses. A review of the SWBGS mapping data indicates that this habitat comprises part of a Secondary Support Areas (C45) for Solent's wader and brent geese populations, which is especially important in years where qualifying species are more abundant or the number of juveniles is higher. The SWBGS stipulates that the loss of or damage to SSAs should be avoided and on-site mitigation provided where possible. However, the assessment concludes that the importance of C45 to overwintering populations is relatively low (compared to Core Areas and Primary Support Areas), and that supporting habitat loss would be relatively small (approx. 5.1ha of the total area of C45 of 63.45ha) and intermittent (foraging use could resume between use of pitches by sports clubs). Overall, adverse effects of the SNP on the Chichester and Langstone Harbours SPA / Ramsar regarding the loss of functionally linked habitat were excluded.

Appendix A

Table 5: Screening table showing the Test of Likely Significant Effects (LSEs) results of policies contained within the Southbourne Neighbourhood Plan. Where a screening result is shaded in green there will be no LSEs on European sites. Orange shading means that there is a potential for LSEs on European sites from the impact pathways identified in the box.

Policy	Description	Test of Likely Significant Effects (LSEs)
A great place for everyone...		
Policy SB1: Development Within and Outside the Settlement Boundaries	<p>A. The Neighbourhood Plan defines the Settlement Boundaries of Southbourne/Prinsted/Nutbourne West and Hermitage/Lumley/Thornham on the Policies Map. Within the Settlement Boundaries, development proposals will be supported if they:</p> <ul style="list-style-type: none"> • Respect the setting, form and character of each settlement as defined in their respective design policies in the Neighbourhood Plan; • Avoid actual or perceived coalescence between settlements; and • Ensure good accessibility to local services and facilities. <p>B. Development proposals outside the Settlement Boundaries is restricted to that which requires a countryside location or meets and essential local rural need or supports rural diversification in accordance with development plan policy on development in the countryside and the alteration, change of use or reuse of existing buildings in the countryside.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a development management policy that sets the requirements that development proposals within and outside of settlement boundaries must fulfil to be supported.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB1 is therefore screened out from Appropriate Assessment.</p>
Policy SB2: Land North of Cooks Lane, Southbourne	<p>The Neighbourhood Plan allocates land North of Cooks Lane, Southbourne, as shown on the Policies Map, for a residential scheme of 199 homes. Development proposals will be supported, provided:</p> <ul style="list-style-type: none"> • The scheme comprises a variety of house types to suit a wide range of households, including at least 70% of homes of 2 or 3 bedrooms type suited to first time buyers, families and downsizers; 	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a housing policy that delivers a residential scheme comprising 199 dwellings on land North of Cooks Lane, Southbourne. Importantly, the policy stipulates that the development proposal must make financial contributions towards Recreation Disturbance Mitigation in the Chichester</p>

<ul style="list-style-type: none"> • 30% of the homes are affordable housing, of which 70% are for affordable rent and 30% for intermediate market housing; • There is a network of natural public open space that supports a range of informal and formal recreation activities, including one or more areas of equipped play of at least 637 sq.m. in total area; • The scheme layout allows for the potential of future pedestrian connectivity to land to the east and north of the site and to the South Downs National Park; • The landscape scheme includes a north-south swale alongside the spine road through the development, to assist surface water drainage and a buffer of at least 15m width to the north and eastern site boundaries to form an effective part of the established Southbourne Green Ring and of at least 5m width to the western boundary; • The scheme delivers a net biodiversity gain of at least 12%, which includes the replanting of the ancient hedgerow to Cooks Lane from the site frontage to another suitable location within the site boundary, and it can be demonstrated to be nutrient neutral; and • Financial contributions are made towards Recreation Disturbance Mitigation in respect of the Chichester Harbour Special Protection Area; towards the cost of highways works to Chichester Bypass and to the A27/Emsworth Road/A259 Warblington junction; and towards the cost of delivering a new 3G sports pitch at Bourne Community College. 	<p>and Langstone Harbours SPA, as well as a new 3G sports pitch at Bourne Community College (see Policy SBxx).</p> <p>Furthermore, the policy also sets out that the allocation's landscape scheme should include a north-south swale along the spine road to reduce the velocity and increase the quality of surface water runoff. This is important in relation to the nearby Chichester and Langstone Harbour SPA / Ramsar, which is sensitive to changes in salinity and temperature due to freshwater input.</p> <p>Notwithstanding the positive policy framework, Policy SB2 is associated with the following impact pathways:</p> <ul style="list-style-type: none"> • Loss of functionally linked habitat • Recreational pressure • Water quality • Water level (through abstraction) • Atmospheric pollution <p>However, the site received outline planning consent on appeal in March 2020, such that its impacts would already have been assessed to ensure that there are no adverse effects on the integrity of European sites. Therefore, Policy SB2 is screened out from Appropriate Assessment.</p>
<p>Policy SB2: Local Housing Needs</p> <p>A. Proposals for residential development will need to consider a mix of housing types and tenures to reflect the identified local housing needs in the Parish and demonstrate how the types of dwellings provided will help ensure a balanced mix of housing for Southbourne. These should include discounted market sales homes; other affordable routes to home ownership; affordable rent; and plots for self build or custom</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a development management policy that addresses the housing needs in Southbourne Parish, identifying the need to consider a mix of housing types and accessible purpose</p>

	<p>build homes in order to provide homes for newly forming households in the Parish.</p> <p>B. The provision of 2 or 3 bed dwellings suitable for younger households is encouraged to meet the significant local need for smaller dwellings, as are accessible purpose-designed C3 dwellings and extra-care accommodation to enable people to downsize and remain in the Parish. The precise housing mix will be determined on a site-by-site basis.</p>	<p>designed C3 dwellings. However, the policy does not allocate specific housing sites.</p> <p>Policy SB2 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB3: Design in Southbourne Parish</p>	<p>A. Development proposals will be supported, providing their scale, density, massing, height, landscape design, layout and materials, including alterations to existing buildings, reflect and enhance the architectural and historic character of the area. Buildings of an outstanding or innovative design which promote high levels of sustainability or help raise the standard of design will be supported as long as they fit with the overall form and layout of their surroundings.</p> <p>B. All proposals should demonstrate high quality design. Development that fails to take the opportunities available to enhance the local character and quality of the area, or that undermines the landscape character of the gaps between settlements, will not be supported.</p> <p>C. Within the Chichester Harbour AONB and its setting, detailed consideration should be given to the distinctive character and qualities of the AONB consistent with the aims of the AONB Management Plan. Buildings taller than 2 storeys are likely to be visible from the harbour and coastal path and may also be visible from the South Downs National Park. Proposals will be expected to demonstrate how their individual or cumulative effect has avoided significant harm to the AONB or to the long views from the SDNP.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a design management policy addressing the scale, density, height, landscape design, layout and material use of development proposals. It details that all proposals must be in keeping with the current character of Southbourne Parish and protect the Chichester Harbour AONB.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB3 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB4: Design and Heritage in Lumley</p>	<p>A. Development proposals in the Lumley Character Area, as shown on the Policies Map, will only be supported if the nature and location of the proposal has regard to the following essential characteristics of the area:</p> <ul style="list-style-type: none"> i. The loose knit rural nature of the area particularly around the Grade II Lumley Mill; 	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a design management policy addressing the design and heritage of development proposals in Lumley. It details that all</p>

	<ul style="list-style-type: none"> ii. Its predominantly farmland setting; iii. The importance of the established trees and hedgerows in forming enclosure in the south west of the area and the enclosure of Lumley Road in the wider landscape; iv. The significance of well-established trees that provide a setting to Lumley Terrace and Flint Cottages; and v. The regular plot sizes of the Grade II Lumley Terrace and Flint Cottages and their regular two- storey brick under tile pitched roof form and vernacular features. 	<p>proposals must be in keeping with the current character of the Lumley Character Area.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB4 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB5: Design and Heritage in Hermitage</p>	<p>A. Development proposals in the Hermitage Character Area, as shown on the Policies Map, will only be supported if the nature and location of the proposal has regard to the following essential characteristics of the area:</p> <ul style="list-style-type: none"> i. The significance of Slipper Mill Pond and Peter Pond in providing visual amenity on the western edge of the area; ii. The views south and north from Hermitage Bridge and the views westward from Slipper Road towards the Emsworth Conservation Area; iii. The importance of retaining established trees and public open spaces at Mill End given the limited open space within the settlement and particularly to the south of the A259; iv. The importance of re-providing a consistency of open space in new development; v. The use of brick, flint and clay tiles in the early cottages and terraces either side of Main Road; vi. The openness of the south of the area and the uninterrupted views towards Chichester Harbour. 	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a design management policy addressing the design and heritage of development proposals in Hermitage. It details that all proposals must be in keeping with the current character of the Hermitage Character Area.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB5 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB6: Design and Heritage in the Prinsted Conservation Area</p>	<p>A. Development proposals should sustain and enhance the special architectural and historic interest of the designated Prinsted Conservation Area, as shown on the Policies Map, and its setting within the Chichester Harbour AONB.</p> <p>B. The significance of the Conservation Area and its setting are defined by the key characteristics and recommendations of the Prinsted Conservation Area Character Appraisal and Management Proposals and the design guidance set out in the Chichester Harbour AONB Joint</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a design management policy detailing that development proposals in the Prinsted Conservation Area must sustain / enhance its architectural and historic setting within the Chichester Harbour AONB.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p>

	<p>Supplementary Planning Document, to which all proposals must have full regard.</p>	<p>Policy SB6 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB7: Design and Heritage in Nutbourne West</p>	<p>A. Development proposals in the Nutbourne West Character Area, as shown on the Policies Map, will only be supported if the nature and location of the proposal has regard to the following essential characteristics of the area:</p> <ul style="list-style-type: none"> i. the separate identity and setting of Nutbourne West and Nutbourne East; ii. the enclosure created by the hedgerows, treelines and designed landscaped areas on the northern edge of the settlement; iii. the open views to Chichester Harbour to the south; iv. panoramic views southward of Bosham Church and the Chidham Bellcote from the coastal path, westward to the spire of St John’s Church, views across Nutbourne Marshes from Farm Lane to the harbour’s edge, and views northward to the National Park and Walderton Hill and Bow Hill. 	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a design management policy that defines design and heritage management in the Nutbourne West area of the parish. The policy explicitly protects open spaces, hedgerows and treelines, and the open views to Chichester Harbour in the settlement.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB7 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB8: Local Heritage Assets</p>	<p>The Neighbourhood Plan identifies Local Heritage Assets, as listed in Appendix C, by way of their local architectural and historic value. Development proposals that may effect the significance of a Local Heritage Asset must take that significance into account in demonstrating that the scale of any proposed harm to or loss of the heritage asset is justified. The loss of the whole or part of a Local Heritage Asset will only be permitted if it can be demonstrated that all reasonable steps will be taken to ensure that the new development will proceed within a year of the loss.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a development management policy that protects 23 non-designated Local Heritage Assets in the parish from negative effects from development proposals. However, these heritage assets have no bearing on the protection of European sites.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB8 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB9: Employment Land</p>	<p>A. Proposals to intensify employment sites within the settlement boundaries in established employment E, B2, B8 use, including Clovelly Road/Park Road Industrial Estate will be supported provided it can be demonstrated that they can be accommodated without causing significant harm to local amenity.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a development management policy that supports the intensification of existing employment land and the provision of employment land on existing brownfield sites. However, the</p>

	<p>B. Proposals for new employment (E and/or B2) uses on brownfield land within the settlement boundaries will be supported to reflect changing trends in employment, provided it can be demonstrated they will achieve a minimum employment density of 1 full time equivalent (FTE) job per 40 m² net internal area and that they accord with all other relevant development plan policies including those intended to safeguard tourism development.</p>	<p>respective sites are already developed and have no potential to result in the loss of functionally linked habitat.</p> <p>Importantly, the policy does not provide for an additional quantum of employment development.</p> <p>Policy SB9 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB10: Community Facilities and Local Shops</p>	<p>A. The retention and enhancement of local services and community facilities including shops, pubs, food outlets, health and commercial services will be supported. Proposals involving the loss of facilities will not be supported unless it can be demonstrated that they are no longer financially viable in line with the provisions of the relevant Local Plan policies.</p> <p>B. In addition, proposals to change the use of a facility or part of a facility that is surplus to requirements must demonstrate that all reasonable steps have been taken to retain its present use and community value as a viable concern.</p> <p>C. Proposals to extend an existing community or retail facility will be supported, provided they are consistent with the relevant policies of the development plan. Expansion of retail facilities must be accompanied by adequate parking.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a policy that protects existing brownfield sites as community facilities, including shops, village hall and sports facilities. However, since this is existing urban development, it will not add anything to existing impact pathways.</p> <p>The policy does not provide for a location and / or quantum of additional residential or employment development.</p> <p>Policy SB10 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB11: Land for Expanding Education and Recreational Uses</p>	<p>The Neighbourhood Plan allocates land to the west of Bourne Community College, as shown on the Policies Map, for outdoor educational and recreational uses, and for any ancillary buildings related to the recreation use, provided they:</p> <ol style="list-style-type: none"> 1. are accessed from the existing access to the College site off Park Road; 2. any disturbance to the amenity of local residents by way of noise and light pollution is avoided or satisfactorily mitigated; and 3. make provision for land to contribute to the delivery of the Green Ring as defined in Policy SB12. 	<p style="background-color: yellow;">[This cell is highlighted in yellow in the original document]</p>
<p>Policy SB12: Green and Blue</p>	<p>A. The Neighbourhood Plan designates a Green Infrastructure Network, as shown on the Policies Map, for the purpose of promoting</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p>

Infrastructure Network

ecological connectivity, outdoor recreation and sustainable movement through the parish and into neighbouring parishes and for mitigating climate change. The Network comprises the continued establishment of the 'Green Ring' around and through the village of Southbourne, and a variety of green spaces, ancient woodland, trees and hedgerows, water bodies, assets of biodiversity value including the Lumley Stream and Ham Brook both chalk streams, children's play areas and off-street footways, cycleways and bridleways.

B. Development proposals that lie within or adjoining the Network are required to have full regard to creating, maintaining and improving the Network, including delivering a net gain to general biodiversity value, in the design of their layouts, landscaping schemes and public open space and play provisions.

C. In that part of the Green Ring to the east of Southbourne village proposals must have equal regard to accessibility to the Network for both existing and new residents. In this respect, the Green Ring will form a central and defining multi-functional landscape feature of any new development, creating opportunities to enhance outdoor sport, recreation and play, improve pedestrian and cycle connectivity to the community hub, schools, the railway station and access across the railway line.

D. Proposals that will prejudice the completion of the Green Ring or lead to the loss of land lying within the Network and that will undermine its integrity will not be supported. Development proposals that will lead to the extension of the Network to create additional recreational opportunities will be supported provided they do not adversely affect the character, environment and appearance of the Chichester Harbour AONB, result in adverse effects on the integrity to the Chichester Harbour SPA, and are consistent with all other relevant policies of the development plan.

E. Proposals of a gross site area of more than 2 Ha should incorporate woodland planting on-site of a species and standard that will effectively store/sequester carbon, as verified by the Woodland

This is an environmental policy setting out a Green and Blue Infrastructure Network (GBIN) for Southbourne Parish in order to promote ecological connectivity and sustainable movement through the parish.

The GIN is likely to have several positive effects for nearby European sites. Firstly, it is likely to reduce the reliance on private car travel by encouraging sustainable travel modes, such as walking and cycling. This may lead to reduced atmospheric nitrogen deposition in European sites.

Furthermore, the GBIN would increase the accessibility of the parish as a whole and various greenspaces, such as ancient woodland, waterbodies (e.g. Lumley Stream, Ham Brook) and children's play areas. This would mean that residents spend more time locally, away from some of the European sites more sensitive to recreational pressure (e.g. the Chichester and Langstone Harbour SPA / Ramsar).

The policy does not provide for a location and / or quantum of residential or employment development.

Policy SB12 is therefore screened out from Appropriate Assessment.

	<p>Carbon Code, unless it can be demonstrated that the soil or other site feature cannot accommodate this planting.</p>	
<p>Policy Biodiversity</p>	<p>SB13: A. Development proposals should take account of the protected and other notable biodiversity species in the neighbourhood area. Development proposals which would affect any of the natural assets will be supported, but only provided:</p> <ul style="list-style-type: none"> • They either avoid (through locating on an alternative site with less harmful impacts), adequately mitigate, or, as a last resort, compensated for any significant harm to biodiversity they will cause; • The land does not lie within or outside a Site of Special Scientific Interest, and which the proposals are not likely to have an adverse effect on it (either individually or in combination with other developments), unless it can be demonstrated 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; and • They will not result in the loss or deterioration of ancient woodland and ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation is made. <p>B. Development proposals should contribute to, increase and enhance the natural environment by providing additional habitat resources for wildlife and demonstrate that any potential impacts upon priority species and habitats have been fully assessed and mitigated to deliver at least a 10% net gain in biodiversity.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a policy protecting biodiversity by stipulating that all development proposals should increase and enhance the natural environment by providing additional wildlife habitat. Particular protection is given to SSSIs and ancient woodlands.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB13 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB14: Trees, Woodland and Hedgerows</p>	<p>A. Development proposals will, wherever possible, ensure the retention of trees, woodland and hedgerows. Particular regard will be given to the protection of these features within the setting of settlements, the protection of ancient woodlands and historic hedgerows and the amenity value of trees within built-up areas.</p> <p>B. Proposals that will result in the loss of trees which have visual and/or amenity value in the Prinsted Conservation Area or mature trees or hedgerows elsewhere in the Parish, either as part of a landscape</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This policy sets out the protection of trees, woodland and hedgerows. For example, development proposals must ensure that, where the loss of such habitat is unavoidable, like-for-like replacements of similar maturity and ecological function must be established.</p>

	<p>scheme or as part of the construction works of a development, will not be supported.</p> <p>C. Where the loss of mature trees or hedgerow is proven to be unavoidable, the proposals must make provision on site for like-for-like replacements and of similar ecological function and maturity to re-establish the loss of biodiversity as quickly as possible. Where like for like replacement of a fully mature tree is not achievable then consideration should be given to an increased number of less mature specimens (but not whips) in order to maintain some approximation of ecological value and function.</p> <p>D. Landscaping and tree and hedgerow planting schemes will be required to accompany applications for new development where it is appropriate to the development and its setting.</p>	<p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB14 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB15: Local Green Spaces</p>	<p>A. The Neighbourhood Plan designates as Local Green Spaces the land shown on the Policies Map and listed in Appendix E.</p> <p>B. Proposals for inappropriate development in a Local Green Space will only be supported in very special circumstances.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This policy designates Local Green Spaces (a total of 17 of them as identified in the supporting text) and protects them from inappropriate development. Safeguarding the green infrastructure is generally regarded as a positive step towards helping reduce recreational pressure in more sensitive sites.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB15 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB16: Achieving Dark Skies</p>	<p>A. All development proposals should be designed to minimise the occurrence of light pollution by employing energy-efficient forms of lighting that also reduce light scatter and comply with the current guidelines established for rural areas by the Institute of Lighting Professionals (ILP).</p> <p>B. Proposals for all development will be expected to demonstrate how it is intended to prevent light pollution. Information on these measures</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a development management policy stipulating that all development proposals should be designed to minimise the occurrence of light pollution, such as by using energy-efficient lighting that reduces light scatter. Information on measures to</p>

	<p>reduce light pollution must be submitted with planning applications.</p> <p>While there are no European sites that are especially sensitive to light pollution near Southbourne Parish, this policy is positive for nocturnal insects, birds and mammals, because it minimises disruption to their activity cycles.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB16 is therefore screened out from Appropriate Assessment.</p>
<p>Policy SB17: Special Protection Areas and Ramsar Sites</p> <p>A. Development involving residential uses will be required to include proposals for avoiding/mitigating their effects on the SPA, SAC and Ramsar sites at Chichester Harbour.</p> <p>B. Proposals should be in accordance with the requirements of the Bird Aware Solent Strategy and the Solent Recreation Mitigation Strategy and include measures to avoid recreational disturbance on the Chichester Harbour SPA and avoid the loss of functionally linked habitat.</p> <p>C. In accordance with the Bird Aware Solent Strategy all residential development within 5.6km of the Solent’s European sites must pay an appropriate financial tariff (reviewed annually) based on the number of bedrooms in the development.</p> <p>D. Proposals for development must also demonstrate the effectiveness of their nutrient neutrality measures to ensure no adverse impact on the Chichester Harbour receiving waters in accordance with Natural England’s latest guidance⁷⁸.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is the Neighbourhood Plan’s key policy extending protection to European sites in or near Southbourne Parish. Importantly, the policy explicitly stipulates that all residential developments within 5.6km of the Chichester and Langstone Harbours SPA / Ramsar must avoid / mitigate recreational disturbance in the site, in line with the Solent Recreation Mitigation Strategy. It also provides reference to the Bird Aware Solent Strategy, which sets out the habitat use of qualifying bird species outside the designated site boundary (and potentially within the Parish of Southbourne).</p> <p>Furthermore, this policy also recognises the issue of nutrient pollution in the Solent and refers to Natural England’s requirement for achieving nutrient neutrality (effectively nitrogen neutrality in the case of marine sites). All development proposals must demonstrate nutrient neutrality.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p>

⁷⁸ Advice on achieving nutrient neutrality for new development in the Solent Region; Natural England, June 2020

	<p>Overall, Policy SB17 is therefore screened out from Appropriate Assessment. It is a positive policy for European sites.</p>
<p>Policy SB18: Zero Carbon Buildings</p> <p>A. All development must be ‘zero carbon ready’ by design to minimise the amount of energy needed to heat and cool buildings through landform, layout, building orientation, massing and landscaping. Consideration should be given to resource efficiency at the outset and whether existing buildings can be re-used as part of the scheme to capture their embodied carbon.</p> <p>B. Wherever feasible, all buildings should be certified to a Passivhaus or equivalent standard with a space heating demand of less than 15kwh/m2/year. Where schemes that maximise their potential to meet this standard by proposing the use of terraced and/or apartment building forms of plot size, plot coverage and layout that are different to those of the character area within which the proposal is located, this will be supported, provided it can be demonstrated that the scheme will not have a significant harmful effect on the character area.</p> <p>C. All planning permissions granted for new and refurbished buildings that cannot meet the standard of Clause B should demonstrate that they have been tested to ensure the ‘as built’ performance as predicted and will include a planning condition to require the provision of post occupancy evaluation reporting to the local planning authority within a specified period. Where this reporting identifies poor energy performance and makes recommendations for reasonable corrective action, the applicant must demonstrate that those actions have been implemented before the condition will be discharged.</p> <p>D. All planning applications for major development are also required to be accompanied by a whole life-cycle carbon emission assessment, using a recognised methodology, to demonstrate actions taken to reduce embodied carbon resulting from the construction and use of the building over its entire life.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This policy is targeting the mitigation of climate change through zero-carbon buildings, including a requirement for major development proposals to submit a Whole Life-Cycle Carbon Emission Assessment. Therefore, it is considered to be a positive policy for the environment.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB18 is therefore screened out from Appropriate Assessment.</p>

<p>Policy SB19: Water Infrastructure and Flood Risk</p> <p>E. An energy and climate statement will be submitted to demonstrate compliance with the policy (except for householder applications). The statement will include a passive design capacity assessment prepared at the earliest stage of site layout design to demonstrate how opportunities to reduce the energy use intensity (eui) of buildings over the plan period have been maximised in accordance with the energy hierarchy. Designers shall evaluate the operational energy use using realistic information on the intended use, occupancy and operation of the building to minimise any performance gap.</p> <p>A. Development proposals will be supported, provided it can be demonstrated that, where appropriate:</p> <ul style="list-style-type: none"> i. The sewer network can accommodate the additional demand for sewerage disposal either in its existing form or through planned improvements to the system to ensure sufficient wastewater treatment is in place in advance of the first occupation of the development; ii. The Water Efficiency Standard of 110 litres per person per day as set out in the National Technical Standards will be achieved in new development to reduce the volume of wastewater entering the foul sewer; iii. Any development proposed in either flood zone 2 or flood zone 3, on sites over 1ha in flood zone 1, or in a dry island, must be accompanied by a site specific Flood Risk Assessment that demonstrates that proposals will not increase flood risk from fluvial flooding or any other form of flooding and takes opportunities to reduce flood risk where possible; and iv. Managing flood risk must take account of the impacts of climate change over the lifetime of the development. <p>B. New development within or adjacent to the Lumley and Ham Brook Chalk Streams must demonstrate the measures that will be taken to ensure that polluted runoff (including suspended sediment) does not leave the site and enter the surrounding waterbodies during either construction or operation.</p> <p>C. New development within or adjacent to Lumley Stream (Lumley) or the Ham Brook (Nutbourne West) Chalk Streams must not direct</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is an environmental protection policy relating to the sustainable use and appropriate treatment of water resources in Southbourne Parish. For example, development proposals will only be permitted if they can be accommodated within the existing headroom of, or future improvements to, the sewer network. Furthermore, a water efficiency standard of 110 litres per person per day is to be achieved in new development. The integrity of the Lumley Brook and Ham Brook (both flowing into the Chichester and Langstone Harbours SPA / Ramsar) must be protected during and post-construction. Finally, new developments must not direct surface water towards these waterbodies beyond existing greenfield runoff rates.</p> <p>Overall, this policy protects the water quality (and ultimately the ecological integrity) of Southbourne's main waterbodies. In turn this will help protect the water quality in the Chichester and Langstone Harbours SPA / Ramsar for which water quality (particularly nitrogen runoff / discharge) is a major problem.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB19 is therefore screened out from Appropriate Assessment. This is a positive policy helping ensure the protection of aquatic European sites.</p>

<p>surface water towards these waterbodies at rates exceeding greenfield run-off as they are already subject to fluvial flooding.</p> <p>D. Safeguard from development low lying areas outside Settlement Boundaries around Chichester Harbour for climate change adaptation land.</p>	
<p>Policy SB20: Sustainable Travel</p> <p>A. Proposals for major development should demonstrate how they have, in the following priority order:</p> <ol style="list-style-type: none"> 1. sought to minimise the need to travel beyond the Parish; 2. for longer trips to encourage and enable the use of active, public and shared forms of transport 3. for trips that must be made by car, encourage and enable the use of zero emission vehicles. <p>B. The design of the layout of any major development scheme must apply Manual for Streets best practice principles and create a permeable network of streets and spaces that connect to key destinations in the Parish such as the Primary Schools, Bourne College, new and existing community facilities and the railway station.</p> <p>C. Proposals for improvements to accessibility, including the provision of off-road car parking and cycle racks to serve rail passengers, and to the quality of Southbourne Railway Station environment, as a key asset in the local public transport network, will be supported.</p>	<p>There are no Likely Significant Effects of this policy on European sites.</p> <p>This is a sustainable travel policy setting out that all major development proposals should seek to minimise the need for travel and, for longer trips, encourage the use of active and public transport modes. Furthermore, journeys that need to be undertaken by car should be transitioned to zero emission vehicles.</p> <p>The promotion of sustainable and active travel modes is a positive step towards a healthier population. Furthermore, a reduction in the reliance on private car travel is likely to decrease atmospheric nitrogen deposition in wildlife habitats, including European sites.</p> <p>The policy does not provide for a location and / or quantum of residential or employment development.</p> <p>Policy SB20 is therefore screened out from Appropriate Assessment.</p>

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