Chichester Local Plan

Habitats Regulations Assessment

Chichester District Council

January 2023

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Quality information

Prepared by	Checked by	Verified by	Approved by
Amelia Kent Senior Ecologist	James Riley Technical Director	Max Wade Technical Director	James Riley Technical Director

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Prepared for:

Chichester District Council

Prepared by:

Amelia Kent
Senior Ecologist

AECOM Limited
Midpoint, Alencon Link
Basingstoke
Hampshire RG21 7PP
United Kingdom

T: +44(0)1256 310200
aecom.com

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Executive Summary

A Habitats Regulation Assessment was commissioned by Chichester District Council and undertaken by AECOM for the Chichester Local Plan. This included both an assessment of Likely Significant Effects and an Appropriate Assessment. The HRA investigated potential impact pathways that could link the Local Plan to European sites (including the Medmerry Nature Reserve), alone and in combination with other plans and projects. Impact pathways explored include recreational pressure, water quality (nutrient neutrality), water quantity, level and flow (including water neutrality for Arun Valley SAC/Ramsar site), loss of functionally linked habitat, atmospheric pollution, and coastal squeeze.

The HRA identified that the Chichester Local Plan contains a sufficient protective policy framework to ensure that development coming forward under the Chichester Local Plan will not result in adverse effects on integrity of any European sites, either in isolation, or in combination, subject to further detailed work for planning applications in the standard manner. Key positive policy provisions that ensure this include (this is not an exhaustive list) are:

- Policy NE4 Strategic Wildlife Corridors: Development will only be permitted where it would not lead to an adverse effect upon the ecological value, function, integrity and connectivity of the strategic wildlife corridors.
- Policy NE5 Biodiversity and Biodiversity Net Gain: All development shall ensure the conservation, protection, enhancement and restoration of biodiversity, avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks.
- Policy NE6 Chichester's Internationally and Nationally Designated Habitats: Development will only be permitted where it would not lead to an adverse effect upon the integrity, either alone or in-combination, directly or indirectly, on internationally, European and nationally important habitat sites.
- Policy NE7 Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat: Provides specific protection against recreational pressure for SPA protected birds from development within 5.6 km of the Chichester and Langstone Harbours and Solent and Dorset Coast SPA and 3.5 km of the Pagham Harbour SPA and includes mitigation through contributions to a joint strategy or a developer provided package of measures.
- Policy NE8 Trees, Hedgerows and Woodlands: Development proposals will only be granted where it can be demonstrated proposals conserve and, where appropriate, enhance existing valued and protected trees, hedgerows and woodlands and other such relevant criteria.
- Policy NE11 The Coast: The Council will continue to work with partner organisations and authorities to protect and enhance the Plan's coastal areas, including around Chichester Harbour, Pagham Harbour, Medmerry Managed Realignment Scheme and the open coast.
- Policy NE12 Development Around the Coast: Planning permission will be granted for development on the coast where it can be demonstrated that there are no harmful effects on or net loss of nature conservation or areas of geological importance, in particular within the Chichester and Pagham Harbours and Medmerry Managed Realignment Scheme (including no adverse effects on the associated European designated sites) and other such relevant criteria.
- Policy NE13 Chichester Harbour Area of Outstanding Natural Beauty: The impact of individual proposals and their cumulative effect on Chichester Harbour AONB and its setting will be carefully assessed. Planning permission will be granted where it can be demonstrated that the natural beauty and locally distinctive features of the AONB are conserved and enhanced, and other such relevant criteria.

Recommendations have been made for amendments to policy text in relation to recreational pressure for the Chichester and Langstone Harbour European sites and Pagham Harbour European sites and loss of functionally linked supporting habitat for birds around the Pagham Harbour European sites. These recommendations have

been made to ensure that that the Chichester Local Plan provides robust protection for European designated sites. These are summarised below:

- Policy E9: Caravan and Camping Sites: To ensure this policy provides a robust framework to ensure the protection of European sites, it is recommended that policy text is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough~~):

*'**~~Whether there is a requirement~~** **The degree of protection considered desirable in order** to avoid disturbance to sensitive sites of ecological value (including ensure no adverse effects on integrity of sensitive European designated wildlife sites occurs) or to protect the tranquillity and character of the countryside, Chichester Harbour Area of Outstanding Natural Beauty and the setting of the National Park, Pagham Harbour and the undeveloped coast; and'*

- Policy NE12: Development around the Coast: It is recommended that point 1 and 2 is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough~~)

'*1. There are no harmful effects on or net loss of nature conservation or areas of geological importance **~~in particular~~** within the Chichester and Pagham Harbours and Medmerry Realignment (including no adverse effects on the associated European designated sites);*

*2. **~~If~~** **T**he development provides recreational opportunities that **~~they~~** do not adversely affect the character, environment and appearance of the coast and Chichester Harbour Area of Outstanding Natural Beauty or **~~damage~~** **result in adverse effects on** the integrity to European designated wildlife sites'*

Policy E4 Horticultural Development was screened out of the HRA as not causing a likely significant effect since it is a development management policy that lists criteria against which a given proposal would be deemed acceptable rather than making allocations or identifying a quantum of growth. However, since Policy E4 sets out the detailed criteria for accepting development within the HDAs, additional wording was recommended to ensure protection for European sites with regards to development allocated within Policy E3 Addressing Horticultural Needs:

- Policy E4 Horticultural Development: It is recommended that this policy include the following additions: '*Ensure that development avoids harm to protected species and existing important habitats features and facilitates the achievement of biodiversity net gain and facilitates the creation of high levels of habitat connectivity within the site and to the wider Green Infrastructure network and identified Strategic Wildlife Corridors within the parish. This includes the provision of appropriate buffers as necessary in relation to important habitats which are being retained and/or created. Successfully avoid and/or mitigate potential impacts on the Pagham SPA/Ramsar, including contributing to any strategic access management issues (including on-site mitigation where required as part of the Habitats Regulations Assessment), and potential for loss of functionally linked supporting habitat.'*

- Finally, Policy A8: East of Chichester: it is recommended that wording regarding project level HRA for the East of Chichester site is included regarding loss and degradation of functionally linked land such as '*Any development brought forward at this site will require a project level HRA to establish that adequate mitigation is in place in line with the submission of a planning application to ensure no adverse effects on the integrity of Singleton and Cocking Tunnels SAC or any other European sites.'*

A full analysis of the impacts of the Chichester Local Plan in combination with other plans and projects was made as part of the HRA report.

Overall, the HRA concluded that the Chichester Local Plan would result in no adverse effect on integrity of European sites either alone or in-combination with other plans and projects.

1. Introduction

Introduction

1.1 AECOM has been appointed by Chichester District Council to assist in undertaking a Habitats Regulations Assessment (HRA) of the Local Plan, which is being undertaken to reflect new data and changing circumstances since preparation of the existing Chichester Local Plan: Key Policies 2014-2029 (adopted in July 2015). As part of the Review, the Council intends to extend the Plan period to 2039. The objectives of this HRA assessment are to:

- Identify any aspects of the Local Plan that would cause an adverse effect on the integrity of Habitats sites, otherwise known as European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), protected SPAs (pSPAs) and, as a matter of Government policy, Ramsar sites), either in isolation or in combination with other plans and projects; and
- To advise on appropriate policy mechanisms for delivering mitigation where such effects were identified.

Legislative context

1.2 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. However, the Withdrawal Act retains the body of existing EU-derived law within our domestic law and it is clear that the HRA process continues post-Brexit.

1.3 The need for Appropriate Assessment (Figure 1) is set out within the Conservation of Habitats and Species Regulations 2017 (as amended).

1.4 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, compensation would be necessary to ensure the overall integrity of the site network.

1.5 In order to ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question:

Figure 1: The legislative basis for Appropriate Assessment

Conservation of Habitats and Species Regulations 2017 (as amended)

The Regulations state that:

"*A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives… The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site*".

1.6 Over time the phrase 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the Habitats Directive 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] 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".*

1.7 In spring 2018 the 'Sweetman' European Court of Justice ruling[2] 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 forming a view on likely significant effects. Mitigation should instead only be considered at the Appropriate Assessment stage. This HRA has been cognisant of that ruling.

Scope of the Project

1.8 There is no guidance that dictates the physical scope of an HRA of a Plan document in all circumstances. Therefore, in considering the physical scope of the assessment, we were guided primarily by the identified impact pathways (called the source-pathway-receptor model) rather than by arbitrary 'zones'. Current guidance suggests that the following European sites be included in the scope of assessment:

- All sites within the boundary of Chichester District; and,
- Other sites shown to be linked to development within the authority boundary through a known impact 'pathway' (discussed below).

1.9 Briefly defined, impact pathways are routes by which the implementation of a policy within a Local Plan document can lead to an effect upon a European designated site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could then affect European sites by, for example, disturbance of wintering or breeding birds.

1.10 Guidance from the Department for Levelling Up, Housing and Communities (DLUHC) states that the HRA should be '*proportionate to the geographical scope of the* [plan policy]' and that '*an AA need not be done in any more detail, or using more resources, than is useful for its purpose'* (DLUHC, 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 development would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a Core Strategy 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'*.

The Layout of this Report

1.11 Chapter 2 of this report explains the methodology by which this HRA has been carried out, including the three essential tasks that form part of HRA. Chapter 3 provides detailed background on the main impact pathways identified in relation to the Local Plan and the relevant European Sites. Chapter 4 undertakes the screening assessment of Likely Significant Effects (LSEs) of the Plan's policies (see Appendix A for the screening tables of Plan policies and the site allocations). Chapters 5 to 13 discuss the appropriate assessment for each of the European sites including their background. The conclusions and recommendations arising from the appropriate assessment are provided in Chapter 14.

Quality Assurance

1.12 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.

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

2. Methodology

Introduction

2.1 The HRA has been carried out with reference to the UK government guidance on HRA[3]. 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.

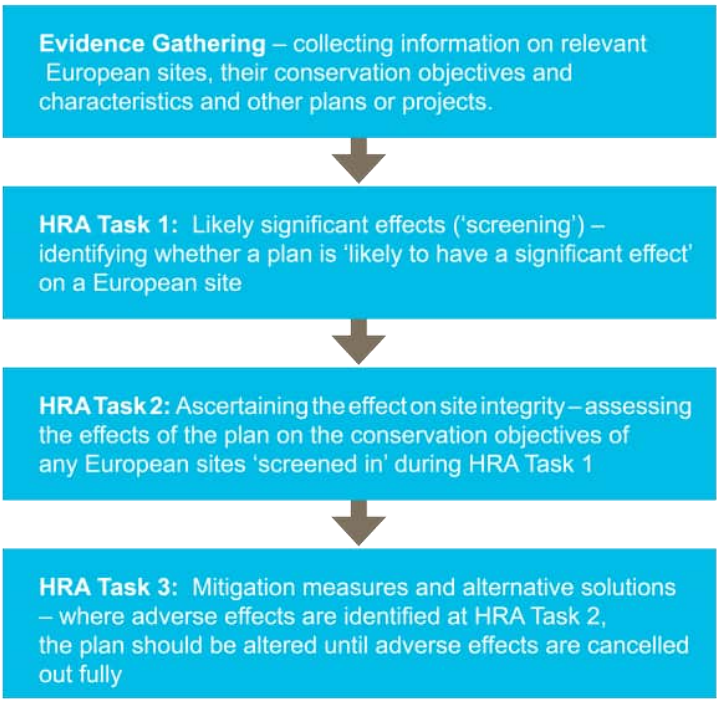


Figure 2. Four Stage Approach to Habitats Regulations Assessment.

Description of HRA Tasks

HRA Task 1 – Likely Significant Effects (LSE)

2.2 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a Likely Significant Effect (LSE) 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*?'

2.3 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 4 of this report and in Appendix A.

HRA Task 2 – Appropriate Assessment (AA)

2.4 Where it is determined that a conclusion of 'no Likely Significant Effect' cannot be drawn, the analysis has proceeded to the next stage of HRA known as Appropriate Assessment. Case law has clarified that 'Appropriate Assessment' is not a technical term. In other words, there are no particular technical

[3] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

analyses, or level of technical analysis, that are classified by law as belonging to appropriate assessment rather than determination of likely significant effects.

2.5 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)).

2.6 Also, in 2018 the Holohan ruling[4] 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 Arun Valley SPA / Ramsar, which supports mobile bird species and The Mens SAC, Singleton and Cocking Tunnels SAC and Ebernoe Common SAC, which all support mobile bat species.

HRA Task 3 – Avoidance and Mitigation

2.7 Where necessary, measures are recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on European sites. There is considerable precedent concerning the level of detail that a Local 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.

2.8 In evaluating significance, AECOM has relied on professional judgement as well as the results of previous stakeholder consultation regarding development impacts on the European sites considered within this assessment.

2.9 When discussing 'mitigation' for a Local Plan document, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the detail of the mitigation measures themselves since the Local Plan document is a high-level policy document.

Geographical Scope of the HRA

2.10 There are no standard criteria for determining the ultimate physical scope of an HRA. Rather, the source-pathway-receptor model should be used to determine whether there is any potential pathway connecting development to any European sites.

2.11 The following European sites lie (at least partly) within Chichester District:

- Chichester and Langstone Harbours SPA and Ramsar sites;
- Pagham Harbour SPA and Ramsar sites;
- Solent Maritime SAC; and
- Solent and Dorset Coast SPA

2.12 Chichester and Langstone Harbours SPA and Ramsar site and Solent Maritime SAC overlap with the Solent and Dorset Coast SPA; unlike the other SPA designations the Solent and Dorset Coast SPA extends much further out into coastal waters. This SPA is proposed to protect the open water feeding grounds for internationally important populations of common, sandwich and little terns. Since nothing in the Local Plan would affect the ability of the open waters in the Solent and Dorset Coast to continue

[4] Case C-461/17

to provide adequate fish resources for foraging terns, the site allocations are extremely unlikely to affect the potential Solent and Dorset Coast SPA. This particular SPA is therefore not discussed further.

2.13 Due to the location of the Solent and Dorset Coast SPA beyond the harbours and within the 'open sea' environment it is considered that it is not sensitive to changes in water quality of draining rivers as its open tidal location ensures continuous mixing. In addition, the plan does not provide any linking impact pathways that could result in increased disturbance at sea from shipping activities or recreational activities that could interact with the SPA. It is for these reasons that this European site is not considered further.

2.14 The following European sites lie within Chichester District, but outside the area covered by the Local Plan as they are within the South Downs National Park. Although the South Downs National Park has its own planning policies, these European sites are considered as there are pathways of impact that may link development within Chichester to these sites:

- Ebernoe Common SAC;
- Singleton & Cocking Tunnels SAC;
- The Mens SAC;
- Duncton to Bignor Escarpment SAC; and,
- Kingley Vale SAC.

2.15 The following European sites lie outside of the Local Plan Area. They were screened out for the adopted Local Plan. However, since that time Natural England has raised a concern regarding inappropriate water levels and the extent to which these are affected by public water supply, so the site is considered in this HRA:

- Arun Valley SAC, SPA & Ramsar sites.

2.16 Arun Valley SPA and Ramsar site is vulnerable to loss of functionally linked supporting habitat located outside of the European site. However, research into the location of the area of functionally linked supporting habitat[5] identifies no areas within Chichester District Council authority boundary and outside the South Downs National Park Authority that serve as functionally linked supporting habitat for the SPA.

2.17 In addition to those discussed above, the following sites were scoped out of the assessment of the developing Local Plan since there was no identifiable pathway linking development in the Local Plan area to these sites:

- Rook Clift SAC;
- East Hampshire Hangers SAC;
- Shortheath Common SAC;
- South Wight Maritime SAC;
- Wealden Heaths Phase II SPA;
- Solent and Isle of Wight Lagoons SAC; and
- Thursley and Ockley Bogs Ramsar site.

2.18 It is considered that there remains no realistic impact pathway linking these sites to the proposed strategic site allocations in the Chichester plan area. Therefore, they are not discussed further in this report.

2.19 The locations of the above mentioned European sites are illustrated in Appendix A, Figure A1. It should be noted that the presence of a conceivable pathway linking the district to a European site does not mean that likely significant effects will occur.

[5] https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n10217.pdf&ver=10138 [accessed 15/10/2018]

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

2.20 It is a requirement of the Regulations that the impacts of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question.

2.21 In considering the potential for regional housing development on European sites the primary consideration is the impact of visitor numbers – i.e., recreational pressure – to which the European designated site within the Chichester plan area is vulnerable. Other pathways of impact described in more detail in Chapter 3 include urbanisation, atmospheric pollution, and pressure on water resources and water quality. Whilst these are also strongly related to housing and employment provision, the actual geographic impact must also be considered within the context of relevant infrastructure (e.g. road transport corridors and water supply catchments).

Table 1: Housing levels to be delivered in authorities neighbouring to Chichester District Council

Local Authority	Housing Levels To Be Delivered In Authorities Neighbouring Chichester District Council
South Downs National Park Authority	4,750 (2014 to 2033)[6]
Arun District Council	at least 20,000 (2011 to 2031)[7]
Horsham District Council	17,370 (2019 to 2036)[8]
Waverley Borough Council	11,210 (2013 to 2032)[9]
East Hampshire District Council (Whitehill-Bordon EcoTown)	10,060 (2011 to 2028)[10]
Havant Borough Council	9,549 (2016 to 2036) (withdrawn Local Plan)[11] 6,300 (Adopted Local Plan)[12]
Portsmouth City Council	up to 8,387 (2010-2027) (Adopted Local Plan[13] 16,933 (2020-2038) (Draft Reg 18 Local Plan)[14]

2.22 There are other plans and projects that are relevant to the 'in combination' assessment, and the following have all been taken into account in this assessment:

Plans

- Core Strategies/Local Plans and DPDs produced by local authorities surrounding the Local Plan area;
- Revised Portsmouth Water's Water Resource Management Plan (June 2021);
- Draft Portsmouth Water Resources Management Plan 2024 (October 2022)
- South East Water's Final Water Resources Management Plan (2019);
- Shoreline Management Plan 13 – North Solent - Selsey Bill to Hurst Spit (December 2010);
- Shoreline Management Plan 12 – South Downs - Beachy Head to Selsey Bill (2006);

[6] Chapter3-Spatial-Portrait-and-Spatial-Strategy.pdf (southdowns.gov.uk) [accessed 24/11/2022]
[7] https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n12844.pdf&ver=12984 [accessed 24/11/2022]
[8] https://strategicplanning.horsham.gov.uk/gf2.ti/f/950722/63848645.1/PDF/-/Local%20Plan%20Review%20-%20Reg%2018%20Consultation%20Document.pdf [accessed 24/11/2022]
[9] http://www.waverley.gov.uk/download/downloads/id/5974/waverley_local_plan_part_1_chapters_only.pdf [accessed 24/11/2022]
[10] https://www.easthants.gov.uk/sites/default/files/documents/DP01EastHampshireDistrictLocalPlanJointCoreStrategy.pdf [accessed 24/11/2022]
[11] http://www.havant.gov.uk/sites/default/files/documents/The%20Draft%20Local%20Plan%202036_for%20web%20with%20policy%20numbers%20%281%29.pdf [accessed 24/11/2022]
[12] Havent Adopted Core Strategy 2011 (havant.gov.uk) [Accessed 24/11/2022)
[13] https://www.portsmouth.gov.uk/ext/documents-external/pln-portsmouth-plan-post-adoption.pdf [accessed 24/11/2022]
[14] Portsmouth Draft Reg 18 Local Plan 2020-2038 [accessed 24/11/2022]

- Pagham to East Head Coastal Defence Strategy (2014);
- Portchester Castle to Emsworth draft Coastal Flood and Erosion Risk Management Strategy (2012);
- Chichester Harbour AONB Management Plan 2019-2024 (February 2019);
- Chichester Harbour AONB State of the AONB Report 2018;
- South Downs Partnership Management Plan 2020-2025;
- Pagham Harbour Local Nature Reserve Management Plan (2014);
- Pagham Harbour Local Nature Reserve Annual Report 2019-2020;
- The relevant Environment Agency Abstraction Management Strategies;
- The relevant Environment Agency River Basin Management Plans;
- The relevant Environment Agency Water Level Management Plans;
- Environment Agency, Southern Water and Chichester District Council position statements on waste-water treatment works;
- Stage 3 and (as appropriate) 4 of the Environment Agency's Review of Consents process for the European sites covered in this assessment (where available);
- European Site Management and Access Management Plans where available;
- Chichester District Council Air Quality Management Plan 2021 – 2026 (February 2021);
- West Sussex Local Transport Plan 2022-2026 (April 2022);
- West Sussex Joint Minerals Local Plan to 2033 (July 2018);
- West Sussex Waste Local Plan 2014-2031 (April 2014);
- Review of West Sussex Waste Local Plan 2014-2031 (May 2019); and
- Chichester District Council's Local Biodiversity Action Plan 2020-2024 (February 2020).

2.23 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 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 therefore of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential.

3. Relevant Impact Pathways

3.1 The following impact pathways are considered relevant to the Chichester Local Plan:

- Recreational pressure;
- Water quality;
- Water quantity, level and flow;
- Loss or degradation of functionally linked habitat; and
- Atmospheric pollution
- Coastal Squeeze

Background to Recreational Pressure

3.2 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 levels and impacts on European protected sites[15] [16]. This applies to any habitat, but the additional recreational pressure from housing growth on destinations designated for bird interests can be especially strong and some waterfowl qualifying for SPA designation are known to be susceptible 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 Local Plans tend to focus on recreational sources of disturbance as a result of new residents[17].

3.3 Human activity can affect birds either directly (e.g. through causing them to flee) or indirectly (e.g. through damaging their habitat or reducing their fitness in less obvious ways e.g. stress). 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 these are less noticeable, they might result in major population-level changes by altering the balance between immigration/birth and emigration/death[18].

3.4 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and the time they spend responding to disturbance is time that is not spent feeding[19]. Disturbance therefore risks increasing energetic expenditure of birds while reducing their energetic intake, which can adversely affect the 'condition' and ultimately survival of the birds. Additionally, displacement of birds from one feeding site to others can increase the pressure on the resources available within the remaining sites, as they then must sustain a greater number of birds[20]. Moreover, the more time a breeding bird spends disturbed from its nest, the more its eggs are likely to 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

[15] 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.
[16] 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.
[17] The RTPI 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'.
[18] Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.
[19] Riddington, R. *et al*. 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279
[20] Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72

densities of key species, such as stone curlew and nightjar[21] [22]. Recreation disturbance in winter can be more adverse because birds are more vulnerable at this time of year due to food shortages.

3.5 Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird diversity and abundance than hiking[23]. Furthermore, key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers[24]. Data on route length and the spatial mapping of routes indicate that key spatio-temporal features (e.g. the potentially impacted area of a site, how frequent or long activities are undertaken) are likely to differ between recreational activities. Overall, activity type is therefore a factor that should be taken into account in HRAs.

3.6 The potential for disturbance may be different in winter than in summer, in that there is often a smaller number of recreational users present on site. Furthermore, the impacts of disturbance at a population level may be reduced because birds are not breeding. However, recreational disturbance in winter may also be more impactful, because birds face seasonal food shortages and are likely to be sensitive to any nutritional loss. Therefore, the abandonment of suitable feeding areas due to disturbance can have serious consequences for their ability to find suitable alternative feeding sites.

3.7 Evans & Warrington[25] found that on Sundays total waterbird numbers (including shovelers and gadwalls) were 19% higher on Stocker's Lake LNR in Hertfordshire and attributed this to observed 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.

3.8 Tuite et al[26] 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 shovelers 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[27] [28].

3.9 A study on recreational disturbance on the Humber[29] assesses different types of noise disturbance on waterfowl referring to studies relating to aircraft (see Drewitt 1999[30]), traffic (Reijnen, Foppen, & Veenbaas 1997)[31], dogs (Lord, Waas, & Innes 1997[32]; Banks & Bryant 2007[33]) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). These studies identified that there is still relatively little work on the effects of different types of water-based craft and the impacts from jet skis, kite surfers, windsurfers etc. (see Kirby et al. 2004[34] for a review). 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

[21] 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. doi:10.1371/journal.pone.0072984.
[22] 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.
[23] Banks P.B., Bryant J.Y. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. Biology Letters 3: 14pp.
[24] Miller S.G., Knight R.L., Miller C.K. 2001. Wildlife responses to pedestrians and dogs. 29: 124-132.
[25] 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
[26] 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
[27] Footprint Ecology. 2010. Recreational Disturbance to Birds on the Humber Estuary
[28] Footprint Ecology, Jonathan Cox Associates & Bournemouth University. 2010. Solent disturbance and mitigation project – various reports.
[29] Helen Fearnley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology
[30] Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.
[31] 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.
[32] 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.
[33] 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.
[34] Kirby, J.S., Clee, C. & Seager, V. (1993) Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. Wader Study Group Bulletin, 68, 53-58.

response (Delaney et al. 1999[35]; Beale & Monaghan 2005[36]). On UK estuaries and coastal sites, a review of WeBS data showed that, among the volunteer WeBS surveyors, driving of motor vehicles and shooting were the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)[37].

3.10 Disturbing activities present themselves on a continuum. Generally, activities that involve irregular, infrequent and loud noise events, movement or vibration are likely to be the most disturbing. For example, the presence of dogs around waterbodies generate substantial disturbance due the areas accessed and their impact on bird behaviour. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable and quiet patterns of sound, movement or vibration. The further any activity is from the birds, the less likely it is to result in disturbance. The factors that determine species responses to disturbance include species sensitivity, timing/duration of the recreational activity and the distance between source and receptor of disturbance.

3.11 The main impacts of recreational pressure will be felt around Chichester and Langstone Harbours SPA/SAC/Ramsar, Solent Maritime SAC, and Pagham Harbour SPA and Ramsar. Bird disturbance is a known current impact on the European sites around the Solent coast. Bird Aware[38] detail that over 52 million visits are made to the Solent coast each year by the 1 million people who live within 5.6km of the Solent and the population increases year on year, resulting in a busier coast, higher disturbance and more frequent and greater impacts on the birds. The Chichester and Langstone Harbours SPA/Ramsar and Solent Maritime SAC make up part of the mosaic of habitats of the Bird Aware Solent Region. The impacts of new residential and tourist development within the Chichester and Langstone Harbours SPA/Ramsar and Solent Maritime SAC are mitigated through the Solent Recreation Mitigation Strategy[39] created by Bird Aware and the Partnership for Urban South Hampshire (PUSH), with effects on Pagham Harbour mitigated through a joint scheme with the Arun District Council[40]. All three European sites will be discussed further with regards to recreational pressure in further chapters.

Background to Water Quality

3.12 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 plant nutrients in water, 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 growth limiting plant nutrient and so eutrophication is associated with discharges containing available 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.

3.13 The main risk associated with the Chichester Local Plan is the discharge of treated sewage effluent from Wastewater Treatment Works (WwTWs) serving the Plan area. This could increase the nutrient concentrations in the water feeding European Sites that are hydrologically linked to waterbodies that receive treated wastewater, such as Chichester & Langstone Harbours SPA/Ramsar site.

[35] 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.
[36] 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.
[37] 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.
[38] Bird disturbance - Bird Aware Solent [Accessed 24/11/2022]
[39] Solent-Recreation-Mitigation-Strategy-December-2017.pdf (portsmouth.gov.uk) [Accessed 24/11/2022]
[40] Appendix 1 Outline joint scheme of mitigation.pdf (moderngov.co.uk) [Accessed 24/11/2022]

Background to Nutrient Neutrality

3.14 Nutrient neutrality has become an issue in many areas of the country, such as the Solent, Somerset Levels, the Wye catchment in Herefordshire, the Camel catchment in Cornwall, and the Stour catchment in Kent.

3.15 Within the Solent catchment, the rich intertidal mudflats, saltmarsh, shingle beaches and adjacent coastal habitats, including grazing marsh, reedbeds and damp woodland, support nationally and internationally important numbers of migratory and over-wintering waders and waterfowl such as ringed plover and sandwich terns, as well as important breeding gull and tern populations. Increased levels of nitrogen and phosphorus entering aquatic environments via surface water and groundwater can severely threaten these sensitive habitats and species within the SPA. The elevated levels of nutrients can cause eutrophication, leading to algal blooms which disrupt normal ecosystem function and cause major changes in the aquatic community. These algal blooms can result in reduced levels of oxygen within the water, which in turn can lead to the death of many aquatic organisms including invertebrates and fish.

3.16 Ultimately the issue of nutrient neutrality stems from the ruling of the European Court of Justice (ECJ) in combined cases C-293/17 and C-294/17 (the Dutch Nitrogen case). That judgment was about nitrogen from atmosphere but in the process of making their ruling the judgment refined the definition of plans and projects to include operations such as agriculture, confirming that agricultural inputs of nutrients (either from atmosphere or runoff) need to be covered in the 'in combination' requirements of the HRA process. This is significant because the traditional assessment process as applied for example in the Environment Agency Review of Consents programme distinctly separates treated wastewater from agricultural discharge, largely because the latter is effectively unconsented [diffuse] and outside the remit of the Environment Agency.

3.17 In addition, the ruling reaffirmed that if a European protected nature conservation site is in a deteriorating condition (such as due to excess nutrient levels that may also be forecast to increase) there are very limited circumstances under which further discharges of nutrients to a site can legally be permitted. This is covered in paragraph 79 of Advocate-General Kokott's opinion, written to inform the court: '*Where total damage is reduced, but the integrity of the protected site concerned is nevertheless adversely affected* [by which she means where the total nitrogen deposition still exceeds the critical load], *Article 6(3) of the Habitats Directive does not in any case permit any additional damage of this kind*'.

3.18 As a result, in the absence of any empirically derived threshold by which additional aquatic inputs of nitrogen and phosphorus can be deemed nugatory or de minimis, it must be concluded that new development within the Solent catchment could increase nitrogen and phosphate deposition into the protected sites above consented levels and thus interfere with the ability of the site to achieve its conservation objectives and thus the integrity of the European protected nature conservation site. This is relevant because under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) a local planning authority (competent authority) cannot legally consent a plan or project that will have an adverse effect on the integrity of any European protected nature conservation site.

3.19 The potential impact of increased nutrient loading resulting from Local Plans is determined using nutrient neutrality calculations. A calculation methodology covering both nitrogen and phosphorus has been developed by Natural England, using the most up-to-date scientific evidence base at the time of publication. This has been published as the 'Nutrient Budget Calculator Guidance Document' (latest version March 2022).

3.20 While a competent authority such as Chichester District Council is not obliged to follow Natural England's advice, as set out in the court ruling in R (Hart District Council) v Secretary of State for Communities and Local Government [2008], it is expected to give 'considerable weight' to Natural England's opinion on HRA matters.

Background to Water Quantity, Level and Flow

3.21 The unique nature of wetlands combines shallow water, high levels of nutrients and high primary productivity. These conditions are ideal for the growth of organisms at the basal level of food webs,

which feed many species of birds, mammals, fish and amphibians. Overwintering and migrating wetland bird species are particularly reliant on these food sources, as they need to build up enough nutritional reserves to sustain their long migration routes.

3.22 Maintaining a steady water supply is of critical importance for many hydrologically dependent SPAs, SACs and Ramsars. For example, in many wetlands winter flooding is essential for sustaining a variety of foraging habitats for SPA / Ramsar wader and waterbird species. However, different species vary in their requirements for specific water levels. Splash and / or shallow flooding is required to provide suitable feeding areas and roosting sites for ducks and waders. In contrast, deeper flooding is essential to provide foraging habitats for Bewick's swans and other ducks.

3.23 Wetland habitats (and thus the fauna they support) rely on hydrological connections with other surface waters, such as rivers, streams and lakes. A constant supply of water is fundamental to maintaining the ecological integrity of sites. However, while the natural fluctuation of water levels within narrow limits is desirable, excess or too little water supply might cause the water level to be outside of the required range of qualifying birds, invertebrate or plant species. This might lead to the loss of the structure and functioning of wetland habitats. There are two mechanisms through which urban development might negatively affect the water level in European Sites:

- The supply of new housing with potable water will require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in the geographic region, this may reduce the water levels in European Sites sharing the same catchment.
- The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface water runoff. As traditional drainage systems often cannot cope with the volume of stormwater, sewer overflows are designed to discharge excess water directly into watercourses. Often this pluvial flooding results in downstream inundation of watercourses and the potential flooding of wetland habitats.

3.24 Within Portsmouth Water's area of supply development and population growth are allowed for in the Company's Water Resource Management Plan but falling per capita consumption and falling commercial demand means that overall demand is not increasing. Abstraction has fallen by 20% since the 1980's and Portsmouth Water has no intention of applying for additional licences.

3.25 The Local Plan area is supplied with water from the Environment Agency Arun and Western Streams catchment, which currently assesses groundwater availability as being 'restricted' in terms of supplies from the Chichester chalk. Freshwater flows into Chichester Harbour arise from the Chichester Rifes - the River Lavant, River Ems, Fishbourne Springs, Bosham Stream, Cutmill Creek, Ham Brook, and the springs at Warblington. The Habitats Directive (HD) review of consents investigated the impact of abstraction on freshwater flows to the SPA and the abstraction management strategy noted that any new licence would need to consider impacts on this conservation site. Within the Local Plan area two water companies are operational in terms of supply:

- Portsmouth Water supplies Chichester, East Wittering, Southbourne, Tangmere and Selsey via their Chichester and Bognor Regis resources zone. Portsmouth Water's licences in the Chichester area are now fully compliant with the Habitats Regulations. The only outcome from the WFD investigations in this area is to consider increased augmentation of the River Ems. This scheme is in the EA's National Environment Programme and has been included in the Company's Business Plan.
- Southern Water supplies the north of the plan area from their Sussex North Water Resource Zone. Within the Draft Water Resources Management Plan 2024[41] it states that as a result of an integrity assessment for the WRMP24 Southern Water can now supply 29.4 million litres per day (Ml/d) against a total potential dry year demand of 28.7 Ml/d, meaning they can guarantee customers remain in supply while work is being carried out at the Weir Wood reservoir.

3.26 Portsmouth Water has confirmed that overall water demand is not increasing despite increased populations and they do not intend to apply for additional licences.

3.27 Part of the northern area of Chichester District is supplied by Southern Water who have an abstraction at Pulborough near Arun Valley SAC/SPA/Ramsar site. The Site Improvement Plans for Arun Valley SAC/SPA/Ramsar identifies inappropriate water levels as threats to the respective sites. Increases to

[41] 6177_dWRMP_Sections_1_3_v1.7.indd (southernwater.co.uk) [Accessed 22/12/2022]

the quantity and rate of water delivery can result in summer flooding and prolonged / deeper winter flooding. This in turn results in the reduction of feeding and roosting sites for birds and be harmful to the little whirlpool ram's-horn snail, which has very specific water level requirements.

3.28 The emerging Local Plan could result in changes to the water quantity, level and flow in the catchment of the River Arun European sites if it required additional abstraction from such sites or the continuance of existing damaging abstraction. This could alter the water level within the designated sites themselves with potential cascading effects on qualifying species. Overall, the following European Sites are considered to be sensitive to changes in water quantity, level and flow and are taken forward to the following chapters of the HRA:

- Arun Valley SAC/SPA/Ramsar site

Background to Loss or Degradation of Functionally Linked Habitat

3.29 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 necessarily the case. A diverse array of qualifying species including birds, bats and amphibians are not always confined to the boundary of designated sites.

3.30 For example, the highly mobile nature of both wader and waterfowl species implies that areas of habitat of crucial importance to the maintenance of their populations are outside the physical limits of European sites. Despite not being designated, these habitats are integral to the maintenance of the structure and function of the designated site and, therefore, land use plans that may affect such functionally linked habitat require further assessment.

3.31 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 land[42]. 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 were affected while on functionally linked land, 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 adjacently located functionally linked land had a peak survey count of 108% of the 5 year mean peak population of golden plover. Similar to the above example, this led to considerable amendments in the planning proposal to ensure that the site integrity was not adversely affected.

3.32 Generally, the identification of an area as functionally linked habitat is not always a straightforward process. The importance of non-designated land parcels may not be apparent and require the analysis of existing data sources to be firmly established. In some instances, data may not be available at all, requiring further survey work.

Coastal Bird Sites

3.33 Chichester and Langstone Harbours SPA and Ramsar site and Pagham Harbour SPA and Ramsar site are notified partly for their over-wintering populations of brent goose (*Branta bernicla bernicla*). However, studies have identified that many feeding sites for this species around the Solent fall outside of the statutory nature conservation site boundaries. The majority of brent goose feeding sites are amenity/recreation grasslands with little intrinsic nature conservation interest, and therefore are vulnerable to loss or damage from development. This also applies to some high tide wader roosts in the Solent. This issue is addressed by the Solent Recreation Mitigation Strategy[43], and specific mitigation guidance is provided in the Solent Waders and Brent Goose Strategy: Interim Guidance on Mitigation and Off-setting Requirements[44]. As part of this Strategy, a network of terrestrial non-

[42] 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.
[43] Bird Aware Solent. (2017) Solent Recreation Mitigation Strategy. December 2017.
[44] Solent Waders and Brent Goose Strategy Steering Group. (2018) Solent Waders and Brent Goose Strategy: Interim Guidance on Mitigation and Off-setting Requirements. March 2018.

designated sites used by brent goose and waders has been identified, in which sites are categorised according to their importance to brent goose and wader populations using the following system:

- **Core Areas** – sites identified as having a network value and/or have a maximum Brent goose and/or wader count of at least 1000 and/or have the maximum score of 7 in at least three metrics;
- **Primary Areas** – sites with a score of 3-6;
- **Secondary Support Areas** – sites with a score of 1-2 and/or have a maximum bird count of at least 100 for brent goose or any wader species;
- **Low Use** – sites in which low numbers of brent goose and/or waders have been recorded (score 0); and
- **Candidate Sites** – sites in which high numbers of brent goose and/or waders have been recorded (at least 100 birds) and/or a score of at least 3 but have fewer than three records in total.

Arun Valley SPA and Ramsar

3.34 Over winter the Arun Valley supports 115 Bewick's swans, representing approximately 1.6% of Britain's migratory population[45]. The Bewick's swan is a highly migratory bird species that spends summer in Russia. However, during the autumn months these swans migrate to northern Europe where they feed upon a diet of grasses, sedges and aquatic plants. The Arun Valley consists of mixed wet grasslands that provides optimal over wintering habitat for these species. In addition, much of the wider surrounding area of Arun consists of floodplain grazing marsh due to the periodic flooding of the River Arun; also supporting suitable over wintering grounds. The Bewick's swan has seen recent declines of 27% from 1995 to 2005[46] with national trends indicating continual declines. Preservation of significant habitat for Bewick's swan, whether it occurs within or outside the SPA and Ramsar site boundary is therefore essential.

3.35 The Arun Valley SPA and Ramsar site is designated for its wintering population of Bewick's swan. It is widely accepted[47] that Bewick's swans frequently feed on suitable farmland up to 5km from the designated site. As such, suitable fields within 5km of the SPA could constitute important supporting habitat if they support a large enough percentage of the SPA population on a regular basis. A small part of the north east of the Chichester Local Plan area lies within 5km of Arun Valley SPA/Ramsar site.

3.36 The species of waterfowl that contribute to the designated bird assemblage of the SPA are not identified by the SPA citation. The Supplementary Advice on the Conservation Objectives for the SPA states that in addition to Bewick swan key assemblage species comprise: wigeon, teal, shoveler, pintail, lapwing, ruff, black-tailed godwit and green sandpiper[48].

3.37 Most of these remaining avian features of the Arun Valley SPA and Ramsar site (pintail, ruff, shoveler, teal and widgeon), primarily frequent waterbodies such as lakes, and will be found foraging and roosting around these waterbodies rather than within arable parcels of land. Lapwing, black-tailed godwit and green sandpiper may use farmland. In broad terms if fields are suitable for foraging non-breeding Bewick swan they are also likely to be suitable for these other species.

3.38 Within the Local Plan HRA for adjacent Arun District (2017) two impact risk zones were identified[49]:

- **Impact Risk Zone 1** – this is a core area where there is good evidence/high probability of use by SPA bird species[50]. As such comprehensive ornithological studies must be conducted within proposed development sites before planning permission is granted.

[45] JNCC (2001) SPA Description: Arun Valley (www.jncc.defra.gov.uk)
[46] Rees, E.C. & Beekman, J. Submitted. Bewick's Swan: a population in decline. British Birds.
[47] Whilst there is no formal publication confirming this, from discussions with the Royal Society for the Protection of Birds (RSPB), Wildfowl and Wetland Trust (WWT) and Natural England (NE) on other projects it has been established that Bewick's Swan often use habitat up to 5km from the designated site for foraging in the winter months. As such 5km has been defined as a zone within which likely significant effects could result from loss of supporting habitat.
[48] http://publications.naturalengland.org.uk/publication/4567444756627456
[49] Urban Edge Environmental Consulting (2016) Habitats Regulations Assessment for the Arun Local Plan: Supplimentary Work. Stage 2 Report: Screening for Likely Significant Effects. Available at: download.cfm (arun.gov.uk) [accessed 17/03/2021]
[50] https://data.gov.uk/dataset/5ae2af0c-1363-4d40-9d1a-e5a1381449f8/sssi-impact-risk-zones [Accessed: 20/09/2018]

- **Impact Risk Zone 2** – this is a 500m buffer beyond zone 1 and is where functionally linked habitat is present and loss of such could therefore impact over wintering bird populations.

The Mens SAC, Ebernoe Common SAC and Singleton & Cocking Tunnels SAC

3.39 Ebernoe Common SAC and The Mens SAC and Singleton & Cocking Tunnels SAC are designated for their populations of rare bats; Bechstein's and barbastelle. Bats are not expected to be confined to the boundaries of European Sites and are anticipated to forage within the wider vicinity of their Core Sustenance Zone (CSZ). For example, in a 2001 study, female adult Bechstein's bats regularly undertook commuting distances of up to 1km[51]. A second radio-tracking study in 2002 of Ebernoe Common SAC, showed that the maximum distance travelled by tagged individuals was 1,407m, with an average of 735.7m[52]. For Bechstein's it is reasonable to assume that the core foraging areas around the Ebernoe Common SAC, The Men's SAC and Singleton & Cocking Tunnels SAC, for which they are designated, is likely to be within c. 1km of each site boundary.

3.40 Barbastelle bats are known to travel substantial distances from their roots to feeding sites. A study on barbastelle bats determined that home range distances show considerable inter-individual differences, with bats traveling between 1 and 20km to reach their foraging areas[53]. In 2016, the Bat Conservation Trust published guidelines on how to determine CSZs for bats and highlighted that barbastelle bats have a mean maximum CSZ of 6.47km[54].

3.41 As a precaution, Natural England and the South Downs National Park Authority have since agreed a Sussex Bat Protocol[55], which identifies a maximum 12km zone around the Sussex bat SACs (Ebernoe Common SAC, The Mens SAC) in which HRAs investigating habitat fragmentation are required. This is based on the furthest distance from the two SACs at which foraging bats were radio-tracked. Singleton and Cocking Tunnels are mainly hibernation roosts, and therefore maternity roosts, as well as the flightlines connecting these roosts outside of the SAC can also be functionally linked. Some maternity roosts have been identified up to 12km from the SAC including at Goodwood and Slindon. The 12 km Zone therefore also applies to Singleton and Cocking Tunnels SAC.

3.42 The protocol identifies two key impact zones surrounding the bat SACs as follows:

- 6.5km: Key conservation area – all impacts assessed;
- 12km: Wider conservation area – significant impacts or severance to flightlines to be considered

3.43 The 6.5 km includes the key conservation area in which all impacts must be considered as habitats within this zone are considered critical for sustaining the populations of bats within the SACs. The north east part of Chichester Local Plan area lies close to The Mens SAC and Ebernoe Common SAC while both the north east part and the main southern part of the Local Plan area lies within 12km of Singleton & Cocking Tunnels SAC.

3.44 Therefore, the following European Sites are taken forward into the following chapters:

- Coastal Bird Sites
- Arun Valley SPA / Ramsar
- The Mens SAC
- Ebernoe Common SAC

[51] Kerth G., Wagner M. & Koenig B. 2001. Roosting together, foraging apart: Information transfer about food is unlikely to explain sociality in female Bechstein's bats (*Myotis bechsteinii*). Behavioural Ecology and Sociobiology 50: 283-291.
[52] Fitzsimmons P., Hill D., Greenaway F. (2002). Patterns of habitat use by female Bechstein's bats (*Myotis bechsteinii*) from a maternity colony in a British woodland.
[53] Zeale M.R.K., Davidson-Watts I. & Jones G. (2012). Home range use and habitat selection by barbastelle bats (*Barbastella barbastellus*): Implications for conservation. Journal of Mammalogy 93: 1110-1118.
[54] Bat Conservation Trust. (2016). Coe Sustenance Zones: Determining zone size. Available at https://cdn.bats.org.uk/pdf/Resources/Core_Sustenance_Zones_Explained_04.02.16.pdf?mtime=20190219173135 [Accessed on the 14/10/2019].
[55] South Downs National Park Authority/ Natural England (2017). Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol. Final Draft

- Singleton & Cocking Tunnels SAC

Background to Atmospheric Pollution

3.45 The main pollutants of concern for European sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2) and are summarised in Table 2. Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[56]. NOx can also be toxic at very high concentrations (far above the annual average critical level). However, in particular, high levels of NOx and NH_3 are likely to increase the total 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 and to lead to eutrophication. This often has adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats[57] [58].

Table 2: Main sources and effects of air pollutants on habitats and species[59]

Pollutant	Source	Effects on habitats and species
Sulphur Dioxide (SO_2)	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. However, total SO_2 emissions in the UK have decreased substantially since the 1980's. Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 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.
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, 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. 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.	Gaseous precursors (e.g. SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. 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. 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.

[56] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[57] 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
[58] 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
[59] Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/)

Pollutant	Source	Effects on habitats and species
Ammonia (NH_3)	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. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4+) - containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH_4+ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	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. Nitrogen oxides have been consistently falling for decades due to a combination of coal fired power station closures, abatement of other combustion point sources and improved vehicle emissions technology. They are expected to continue to fall over the plan period.	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 NOx for all vegetation types has been set to 30 ug/m^3. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. 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.
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices. The N pollutants together are a large contributor to acidification (see above).	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. 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. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly	Concentrations of O_3 above 40 ppb can be toxic to both humans and wildlife and can affect buildings.

Pollutant	Source	Effects on habitats and species
	released by the combustion of fossil fuels (as discussed above). 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.	High O_3 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.

3.46 Sulphur dioxide 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) shipping[60]. Ammonia emissions originate from agricultural practices[61], with some chemical processes and some road traffic (notably petrol cars) also making notable contributions. As such, it is unlikely that material increases in SO_2 emissions will be associated with the emerging Local Plan.

3.47 In contrast, NOx emissions are dominated by the output of vehicle exhausts (more than half of all emissions). A 'typical' housing development will contribute by far the largest portion to its overall NOx footprint (92%) through its associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[62]. The emerging Local Plan, which will result in an increase in Chichester District's population, can therefore be reasonably expected to increase emissions of NOx and ammonia through an increase in vehicular traffic.

3.48 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 μgm^{-3}; the threshold for sulphur dioxide is 20 μgm^{-3}. In addition, ecological studies have determined 'critical loads'[63] of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH_3).

3.49 According to the Department of Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is insignificant[64] (Figure 3). This is therefore the distance that has been used throughout this HRA to identify major commuter routes along European Sites, which are likely to be significantly affected by development outlined in the Local Plan.

3.50 Overall, an increase in the net population and employment opportunities within Chichester Local Plan area will result in more inward and outward commuter traffic.

[60] http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.
[61] 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
[62] 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
[63] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[64] http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013; accessed 12/05/2016

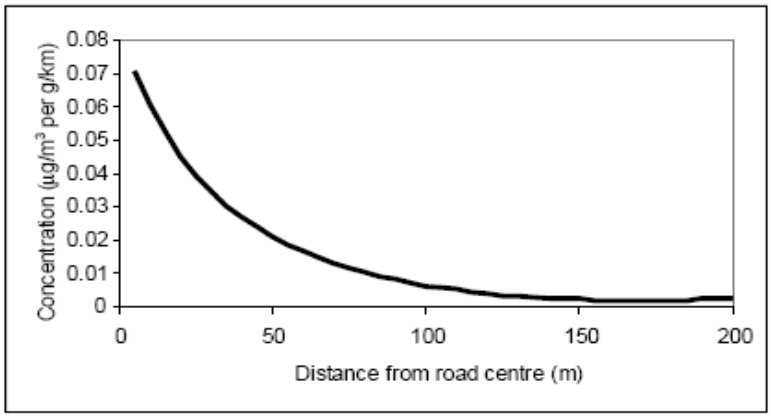


Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT[65])

3.51 The following European sites are located within 200m of a potentially affected road and have thus been subject to air quality assessment.

Table 3: European Sites Located within 200m of a Potentially Affected Road

European Site	Potentially Affected Road	Air Quality Affected Road Reference Code
Duncton to Bignore Escarpment SAC	A285	DNBG
Kingley Vale SAC	B2142	KGVE
Solent European Sites near Nutbourne	A259	CLSM2
Solent European sites near Bosham	A259	SOME
Solent European sites near Fishbourne	A259	CLSM3
Pagham Harbour SPA/Ramsar site	B2145	PGHR1
Ebernoe Common SAC	A283	EBCM
The Mens SAC	A272	MENS1 & MENS2
Butser Hill SAC	A3	BSHL
Solent European sites	A27 near A3(M) junction	CLSM1
Solent European sites	A27 west of A2030 and Farlington Marshes	SLDR

3.52 It is the above European sites identified in Table 3 that will be subject to an air quality assessment. Consideration was given to including Singleton & Cocking Tunnels SAC. However, the SAC consists of two railway tunnels which are not vegetated features and the SAC entrances lie nearly 200m from

[65] http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf; accessed 13/07/2018

the closest road at their closest point. Therefore, Singleton & Cocking Tunnels SAC has been scoped out of the assessment with regard to air quality.

Background to Coastal Squeeze

3.53 Rising sea levels can be expected to cause intertidal habitats (principally saltmarsh and mudflat) to migrate landwards. However, in built-up areas, such landward retreat is often rendered impossible due the presence of sea walls and other flood defences.

3.54 In addition, as development frequently takes place immediately behind the sea wall, flood defences often cannot be moved landwards to accommodate managed retreat of threatened habitats. The net result of this is that the quantity of saltmarsh and mudflat adjacent to built-up areas will progressively decrease as sea levels rise. This process is known as 'coastal squeeze'. In areas where sediment availability is reduced, the 'squeeze' also includes an increasingly steep beach profile and foreshortening of the seaward zones.

3.55 The North Solent (Selsey Bill to Hurst Spit) Shoreline Management Plan units for Chichester and Langstone Harbours indicate that there will be a combination of 'Hold the Line', 'Managed Realignment' and 'Adaptive Management' strategies[66]. An HRA of the SMP[67] indicated that Hold the Line will have no effect on habitats behind the defences, whilst Managed Realignment is likely to "*have a significant detrimental effect resulting in loss of designated terrestrial habitats including coastal grazing marsh, saline lagoons and grasslands*." Managed Realignment is proposed in the short term for part of Chichester Harbour. Although Hold the Line is the preferred approach for the majority of the shoreline, the SMP notes that further studies on Chichester and Langstone Harbours may lead to revision of this for significant lengths of shoreline in the inner harbours.

3.56 The South Downs (Beachy Head to Selsey Bill) SMP for areas fronting Pagham Harbour identifies a mix of Hold the Line and Managed Realignment strategies. The SMP states that a Managed Realignment strategy is being adopted to maintain the integrity of the harbour with its nature conservation value as a primary consideration.

3.57 In order to conclude that development in the Local Plan area would not lead to a significant adverse effect as a result of coastal squeeze, it will be necessary to conclude that the Local Plan would not require the SMP (or resulting Coastal Strategy) policies for the frontage to be altered and would not be situated in such as position as to require new defences in currently undefended parts of the coastline or locate development in areas planned for managed realignment in the SMP or the Environment Agency Regional Habitat Creation Programme.

[66] http://www.northsolentsmp.co.uk/ [Accessed: 12/10/2018]
[67] North Solent SMP Appendix J Appropriate Assessment (northsolentsmp.co.uk)

4. Likely Significant Effects Test Summary

Policies and Site Allocations

4.1 In the Likely Significant Effects Test undertaken in **Appendix A: Policy and Allocation Screening**, the following policies and site allocations could not be screened out in isolation:

- Policy S1: Spatial Development Strategy
- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
    - Land at Cherry West
    - Land at Lakeside Barn
    - Tower View Nurseries
    - Greenacre
    - Sunrise Southbourne
    - The Stables on Bracklesham Lane
    - Five Paddocks Farm Bracklesham
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development
- Policy A2: Chichester City – Strategic Housing Location
- Policy A15: Loxwood
- Policy A6: Land West of Chichester
- Policy A7: Land at Shopwyke (Oving Parish)
- Policy A8: Land East of Chichester
- Policy A9: Land at Westhampnett / North East Chichester
- Policy A5: Southern Gateway – Police Field, Kingsham Road
- Policy A4: Southern Gateway – Bus Station Depot and Basing Road Car Park
- Policy A11: Highgrove Farm, Bosham
- Policy A12: Chidham and Hambrook Parish
- Policy A13: Southbourne
- Policy A14: Land West of Tangmere

- Policy A16: Goodwood Motor Circuit and Airfield
- Policy A20: Land South of Bognor Road
- Policy A19: Land at Chichester Business Park, Tangmere
- Policy A21: Land East of Rolls Royce

4.2 The Likely Significant Effects Test identified that the following potential linking impact pathways could result in adverse effects on integrity of European sites, and as such will be subject to Appropriate Assessment in the following subsequent Chapters (Chapters 5 to 10):

- Water quality;
- Air quality;
- Recreational pressure;
- Loss of functionally linked supporting habitat;
- Urbanization; and
- Costal squeeze.

4.3 All of these impact pathways are inherently in-combination impacts and the implications of the policies as a collective will be discussed further in chapters specific to the European sites and presented against each relevant impact pathway.

Down the Line Assessment

4.4 The Likely Significant Effects Test undertaken in **Appendix A: Policy & Allocation Screening** was able to screen out the following policies. This is because the policies did not allocate a location for development or a quantum of development. These policies are concerned with development management criteria to ensure appropriate development approved when planning applications are brought forward. Any planning applications being brought forward to be evaluated for compliance with these policies could potentially have likely significant effects but the policies themselves will not. Any such planning applications must still comply with the Habitats Regulations and would need to be screened individually to determine if the development would pose potential likely significant effect. Should there be potential likely significant effect these planning applications would require down the line assessment at a project level, this is discussed for each of the policies within the screening table in Appendix A. The policies for which this is the case are as follows:

- Policy H6: Custom and/or Self Build Homes
- Policy H7: Rural and First Homes Exception Sites
- Policy H8: Specialist Accommodation for Older People and those with Specialist Needs
- Policy H9: Accommodation for Agricultural, Horticultural and other Rural Workers
- Policy H13: Accommodation for Gypsies, Travellers and Travelling Showpeople
- Policy E2: Employment Development
- Policy E4: Horticultural Development
- Policy E8: Built Tourist and Leisure Development
- Policy E9: Caravan and Camping Sites
- Policy E10: Equestrian Development
- Policy T1: Transport Infrastructure
- Policy T2: Transport and Development
- Policy A3: Southern Gateway Development Principles
- Policy A17: Development within the Vicinity of Goodwood Motor Circuit and Airfield.
- Policy A18: Thorney Island

4.5 These policies are therefore screened out of further assessment within this HRA.

Summary

4.6 In summary, the focus of the Appropriate Assessment is therefore on the following pathways of impact:

- **Recreational pressure**
  - whether proposed housing sites are located within 5.6km of the Chichester and Langstone Harbours SPA/Ramsar site or the Medmerry realignment
  - whether proposed housing sites are located within 3.5km of Pagham Harbour SPA/Ramsar site.
- **Other forms of disturbance such as noise or lighting**
- **Nutrient neutrality & water neutrality**
  - Nutrient neutrality – in terms of whether individual sites present impact pathways (such as surface water runoff) to European sites, or are located within the catchment of WwTW that drain into Chichester Harbour where there are known nutrient impacts.
  - water neutrality – in terms of whether individual sites present impact pathways with regards to water neutrality on Arun Valley SAC/SPA
- **Loss of, or prevention of access to, functionally linked supporting habitat:**
  - Chichester and Langstone Harbours SPA/Ramsar site (including the Medmerry realignment);
  - Pagham Harbour SPA/Ramsar site;
  - Ebernoe Common SAC;
  - Singleton and Cocking Tunnels SAC; and,
  - The Mens SAC.
- **Atmospheric pollution:**
  - Duncton to Bignor Escarpment SAC
  - Kingley Vale SAC
  - Chichester and Langstone Harbours SPA/Ramsar site
  - Solent Maritime SAC
  - Pagham Harbour SPA/Ramsar site
  - Ebernoe Common SAC
  - The Mens SAC
  - Butser Hill SAC

5. Chichester and Langstone Harbours SPA and Ramsar Site/Solent Maritime SAC/Solent and Dorset Coast SPA[68]

Introduction

5.1 Chichester and Langstone Harbours SPA and Ramsar site encompasses two large sheltered estuarine basins: Langstone and Chichester Harbours on the Hampshire/Sussex border. The two harbours are separated by Hayling Island and meet at Langstone Bridge. The SPA is comprised of two Sites of Special Scientific Interest (SSSI): Chichester Harbour SSSI and Langstone Harbour SSSI.

5.2 Chichester Harbour and Langstone Harbour, along with the coastal waters between the two harbours, form part of the Solent Maritime SAC, along with Portsmouth Harbour SPA/Ramsar site and Solent & Southampton Water SPA/Ramsar site.

5.3 Chichester Harbour SSSI is a large estuarine basin within which extensive mud and sandflats are exposed at low tide. The site is of particular significance for wintering wildfowl and waders and also for breeding birds both within the Harbour and in the surrounding pastures and woodlands. There is also a wide range of habitats which have important plant communities.

5.4 Chichester Harbour and the adjoining Portsmouth and Langstone Harbours together form a single system which is among the ten most important intertidal areas for waders in Britain.

Chichester and Langstone Harbours SPA and Ramsar site

5.5 Features of European Interest[69] Chichester and Langstone Harbours SPA qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive

5.6 During the breeding season:

- Common Tern *Sterna hirundo*: 0.3% of the breeding population in Great Britain (5-year mean, 1992-1996);
- Sandwich Tern *Sterna sandvicensis*: 0.2% of the breeding population in Great Britain (5-year mean, 1993-1997); and
- Little Tern *Sternula albifrons*: 4.2% of the breeding population in Great Britain (5-year mean, 1992-1996).

5.7 Over winter:

- Bar-tailed Godwit *Limosa lapponica*: 3.2% of the wintering population in Great Britain (5-year peak mean 1991/92-1995/96).

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

5.9 Over winter:

[68] Note that this includes the Medmerry realignment, which although close to Pagham Harbour SPA/Ramsar site was created to compensate for coastal squeeze losses on the Solent & Southampton Water and Chichester & Langstone Harbours. In practice there is considerable overlap between the 5.6km zone from Medmerry, the 5.6km zone from Chichester Harbour and the 3.5km zone from Pagham Harbour.

[69] http://publications.naturalengland.org.uk/publication/5789102905491456 [Accessed: 15/10/2018]

- Pintail *Anas acuta*: 1.2% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Shoveler *Anas clypeata*: 1% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Teal *Anas crecca*: 0.5% of the population (5-year peak mean 1991/92-1995/96);
- Wigeon *Anas penelope*: 0.7% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Turnstone *Arenaria interpres*: 0.7% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Dark-bellied Brent Goose *Branta bernicla bernicla*: 5.7% of the population (5-year peak mean 1991/92-1995/96);
- Sanderling *Calidris alba*: 0.2% of the population (5-year peak mean 1991/92-1995/96);
- Dunlin *Calidris alpina alpina*: 3.2% of the population (5-year peak mean 1991/92-1995/96);
- Ringed Plover *Charadrius hiaticula*: 3% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Red-breasted Merganser *Mergus serrator*: 3% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Curlew *Numenius arquata*: 1.6% of the population in Great Britain (5-year peak mean 1991/92-1995/96);
- Grey Plover *Pluvialis squatarola*: 2.3% of the population (5-year peak mean 1991/92-1995/96);
- Shelduck *Tadorna tadorna*: 3.3% of the population in Great Britain (5-year peak mean 1991/92-1995/96); and
- Redshank *Tringa totanus*: 1% of the population (5-year peak mean 1991/92-1995/96).

5.10 The area also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting an internationally important assemblage of birds. Over winter, the area regularly supports 93,230 individual waterfowl (5-year peak mean 01/04/1998) including: Wigeon, Bar-tailed Godwit, Dark-bellied Brent Goose, Ringed Plover, Grey Plover, Dunlin, Redshank, Shelduck, Curlew, Teal, Pintail, Shoveler, Red-breasted Merganser, Sanderling and Turnstone.

Conservation Objectives[70]

5.11 '*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;*

5.12 *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;*

- 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.'

5.13 Chichester and Langstone Harbours **Ramsar** site qualifies under the following Ramsar criteria.[71]

[70] Natural England. European Site Conservation Objectives for Chichester and Langstone Harbours Special Protection Area (2014) Available: http://publications.naturalengland.org.uk/publication/5789102905491456 [Accessed: 15/10/2018].
[71] http://jncc.defra.gov.uk/pdf/RIS/UK11013.pdf [accessed 01/10/2018]
Note: Defra and Natural England have not produced a Conservation Advice package, instead focussing on the production of High Level Conservation Objectives. Natural England considers the Conservation Advice packages for the overlapping European Marine Site designations to be, in most cases, sufficient to support the management of the Ramsar interests.

Table 4. Chichester and Langstone Harbours Ramsar site criteria.

Ramsar criterion	Description of criterion	Chichester and Langstone Harbours
1	A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.	Two large estuarine basins linked by the channel which divides Hayling Islands from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes.
5	A wetland should be considered internationally important if it regularly supports assemblages of waterbirds of international importance.	76,480 waterfowl (5-year peak mean 1998/99–2002/03).
6	A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.	Species with peak counts in spring/autumn: Ringed plover *Charadrius hiaticula*: 853 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/99–2002/03). Black-tailed godwit *Limosa limosa islandica*: 906 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/99–2002/03). Common redshank *Tringa totanus totanus*: 2577 individuals, representing an average of 1% of the population (5-year peak mean 1998/99–2002/03). Species with peak counts in winter: Dark-bellied brent goose *Branta bernicla bernicla*: 12,987 individuals, representing an average of 6% of the populations (5-year peak mean 1998/99–2002/03). Common shelduck *Tadorna tadorna*: 1,468 individuals, representing an average of 1.8% of the GB population (5-year peak mean 1998/99–2002/03). Grey plover *Pluvialis squatarola*: 3,043 individuals, representing an average of 1.2% of the population (5-year peak mean 1998/99–2002/03). Dunlin *Calidris alpina alpina*: 33,436 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/99–2002/03). Species regularly supported during the breeding season: Little tern *Sternula albifrons albifrons*: 130 apparently occupied nests, representing an

		average of 1.1% of the breeding populations (Seabird 2000 census)[72]

Medmerry Nature Reserve

5.14 At present Medmerry has the status of 'Identified Compensatory Habitat' which gives it protection through the planning system (specifically, paragraph 118 of the National Planning Policy Framework identifies that such compensatory habitat must be treated it as if it is a European site). If/when it becomes identified by Natural England as a potential SPA (pSPA) this would give it legal protection under the Habitats Regulations 2017. Since it is not actually a pSPA it does not have specific official conservation objectives or designated interest features. However, for the purposes of future-proofing the HRA of the Local Plan it is reasonable to assume that during the plan period it will acquire a collection of interest features similar to that of Chichester & Langstone Harbour SPA and the Solent Maritime SAC. The site is already known to support Brent geese, golden plover, lapwing and avocet and also has extensive areas of intertidal mudflat and early successional saltmarsh.

Solent Maritime SAC

Features of European Interest[73]

5.15 Solent Maritime SAC qualifies as a SAC for both habitats and species. Firstly, the site contains the following Habitats Directive Annex I habitats:

- Estuaries;
- Cord-grass (*Spartina*) swards (*Spartinion maritimae*);
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*);
- Subtidal sandbanks (sandbanks which are slightly covered by seawater all the time);
- Intertidal mudflats and sandflats (mudflats and sandflats not covered by seawater at low tide);
- Lagoons (coastal lagoons);
- Annual vegetation of drift lines;
- Coastal shingle vegetation (perennial vegetation of stony banks);
- Glasswort (*Salicornia*) and other annuals colonising mud and sand; and
- Shifting dunes with marram (shifting dunes along the shoreline with *Ammophila arenaria* 'white dunes').

5.16 Secondly, the site also qualifies for the following Habitats Directive Annex II species:

- Desmoulin's whorl snail (*Vertigo moulinsiana*).

Conservation Objectives[74]

5.17 '*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*

[72] Species identified subsequent to designation for future possible consideration.
[73] Available online: http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0030059 [Accessed: 15/10/2018].
[74] Natural England. European Site Conservation Objectives for Solent Maritime Special Area of Conservation (2014) AvalableAvailable online: http://publications.naturalengland.org.uk/publication/5762436174970880 [Accessed: 15/10/2018]. http://publications.naturalengland.org.uk/publication/5762436174970880

- *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.'*

Historic Trends and Current Conditions

5.18 Langstone Harbour is fringed by urban and industrial development, whereas Chichester Harbour is surrounded mainly by high grade farmland. The site is subjected to significant recreational pressures, especially during summer months.

5.19 Both harbours are managed by statutory bodies whose remits include conservation of the natural environment. Conservation bodies have an advisory input to the management of the harbours and play an active role in the management of numerous Local Authority and RSPB nature reserves around the site. In 2000, a collaborative Solent European Marine Sites project was set up with the aim of developing a strategy for managing the marine and coastal resources of the Solent in a more integrated and sustainable way.

5.20 The Environment Agency Review of Consents and the HRA of the South East Regional Spatial Strategy both identified that development within the Chichester area may be constrained by restrictions that will be/have been placed on some Wastewater Treatment Works (WwTW) in order to ensure suitable water quality in the receiving marine/coastal waters of the two harbours. Memoranda of understanding currently exist between both the Environment Agency (EA) and Southern Water Services and Chichester Council which clearly set out which WwTWs are constrained, the quantum of new housing that can be accommodated and the available strategies for delivering housing while avoiding adverse effects on the European sites.

5.21 Natural England condition assessment of Chichester Harbour SSSI indicated that 22% of the site was in favourable condition, with the remaining 78% recovering from an unfavourable status. In the case of Langstone Harbour SSSI these figures were 9% and 91% respectively.

Key Environmental Conditions

5.22 The key environmental conditions that support the features of European interest have been defined as:

- Sufficient space between the site and development to allow for managed retreat of intertidal habitats (to avoid coastal squeeze);
- Avoidance of dredging or land-claim of coastal habitats;
- Maintenance of freshwater inputs;
- Balance of saline and non-saline conditions;
- Unpolluted water;
- Absence of nutrient enrichment;
- Absence of non-native species;
- Maintenance of adjacent grassland (key foraging resource); and
- Absence of disturbance.

Potential Effects Linking to the Local Plan

5.23 The screening assessment undertaken in **Appendix A: Policy and Allocation Screening** identify the following policies and strategic site allocations have the potential to link to these European designated sites and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
  - Land at Cherry West
  - Land at Lakeside Barn
  - Tower View Nurseries
  - Greenacre
  - Sunrise Southbourne
  - The Stables on Bracklesham Lane
  - Five Paddocks Farm Bracklesham
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development

Strategic Site Allocations and Broad Locations for Development

- Policy A6: Land West of Chichester
- Policy A7: Land at Shopwyke (Oving Parish)
- Policy A8: East of Chichester (Oving Parish)
- Policy A5: Southern Gateway – Police Field, Kingsham Road
- Policy A4: Southern Gateway – Bus Station, Bus Depot and Basing Road Car Park
- Policy A15: Loxwood
- Policy A2: Chichester City Strategic Housing Location
- Policy A9: Land at Westhampnett / North East Chichester
- Policy A11: Highgrove Farm, Bosham
- Policy A12: Chidham and Hambrook Parish
- Policy A13: Southbourne Broad Location for Development
- Policy A14: Land West of Tangmere
- Policy A16: Goodwood Motor Circuit and Airfield
- Policy A20: Land South of Bognor Road
- Policy: A19: Land at Chichester Business Park, Tangmere
- Policy A21: Land East of Rolls Royce

5.24 Potential linking impact pathways are as follows:

- Urbanisation
- Recreational pressure
- Reduced water quality
- Coastal squeeze

- Loss of functionally linked supporting habitat for birds
- Atmospheric pollution

Appropriate Assessment

Urbanisation

5.25 Development described in the Chichester Local Plan provides for development within the following allocations or Parishes that are wholly or partially located within 400m of the SPA/ Ramsar site and as such could affect the European sites in urbanisation effects:

- Policy A13: Southbourne Broad Location for Development
- Policy A12: Chidham and Hambrook
- Policy A18: Thorney Island
- The Parish of West Thorney
- The Parish of Bosham
- The Parish of Fishbourne

5.26 In addition, the parishes of Selsey, Earnley and Sidlesham all lie within 400m of Medmerry Nature Reserve. No sites have been allocated for residential dwellings within the Local Plan within 400m of the Medmerry Nature Reserve.

5.27 Whilst none of the policies stated above provide for specific protection from potential urbanisation effects, Plan Policy NE5: Biodiversity and Biodiversity Net Gain states: *'All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological network… Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations;*

5.28 Other protective measures included within policy text include:

- Policy I1: Infrastructure Provision: this policy provides for the timely delivery of infrastructure. This may include recreational provision to ensure no adverse effects result.
- Policy A18: Thorney Island: '*All development proposals should seek to enhance the overall character of the Island as well as support opportunities for habitat creation. Proposals must mitigate any adverse impacts on local infrastructure and ecology, preserve the character of the surrounding area and take opportunities to increase public access. Proposals must avoid adverse impacts on the Chichester Harbour AONB/SAC/SPA and Ramsar designations and comply with Policy NE13 (Chichester Harbour AONB) and associated AONB Management Plan and SPD'*.

5.29 Moreover, Policy NE6: Chichester's Internationally and Nationally Designated Habitats states that a requirement of all development is that '*it would not lead to an adverse effect upon the integrity, either alone or in-combination, directly or indirectly, on internationally, European and nationally important sites'*

Recreational Pressure

5.30 Chichester and Langstone Harbours SPA/Ramsar sites and the Medmerry Nature Reserve lie within the Chichester Local Plan area. The Solent Forum undertook a project to examine bird disturbance and possible mitigation in the Solent area. A Phase 1 report has outlined the existing visitor data for the Solent, canvassed expert opinion on recreational impacts on birds and assessed current available data on relevant species. Phase II of the Solent Disturbance and Mitigation Project identified that survival rates for curlew and a variety of other bird species were predicted to decrease under an increase in visitor rates.

5.31 The 2017 Solent Recreation Mitigation Strategy[75] aims to address the strategic issue of increased recreational pressure to SPA sites along the Solent Coast by implementing measures including a coastal ranger team, increased education, responsible dog walking initiatives, codes of conduct for coastal activities, site-specific visitor management and habitat protection projects and the provision of alternative greenspaces. These measures are to be coordinated by a partnership manager, and their delivery will be funded by financial contributions from developments within 5.6km of the Solent European sites. At the time of writing (December 2022), this contribution equates to a flat rate of £652 per net additional dwelling. The scale of contributions differs according to the number of people expected to live in the property which is calculated per bedroom. The contributions rates for Bird Aware Solent are currently:

- £390 for 1 bedroom dwelling
- £563 for 2 bedroom dwelling
- £735 for 3 bedroom dwelling
- £864 for 4 bedroom dwelling
- £1014 for 5 bedrooms or more

5.32 These rates are subject to annual change in April of each year[76].

5.33 Data on visitor activity in the Solent complex was obtained through the Solent Disturbance and Mitigation Project.[77,78] Chichester Harbour is expected to see an increase of 15-20% in visitors (Fig. 5.4 of Stillman et al), although the numbers of visitors per hectare of intertidal habitat (i.e. visitor density) is predicted to be a lot lower than most other parts of the Solent frontage (Figure 5.6 of the same report). In most cases, visitor density is predicted to be below 30/ha, the density above which the report identifies birds may have reduced survival due to disturbance (Figure 5.7 of the same report). The exceptions are sectors 67 (Northney to Langstone Bridge) and 78 (Bosham Shipyard to Southwood Farm); in the case of sector 78 visitor densities are predicted to be more than twice this threshold. Although disturbance rates were relatively low within Chichester Harbour as a whole, the low measured abundance of food, implies that birds would also be vulnerable to disturbance in this site. Visitor numbers per day were typically highest on weekends compared to weekdays. Holiday makers accounted for 6% of the total number of visitors recorded. Visitors undertook a wide range of activities, with walking (without a dog) and dog walking the two most frequently recorded activities (44% and 42% of interviews). Across all sites and activities, visits were typically short, with 89% lasting less than two hours. Across all sites (and taking the data for non-holiday makers only) visitors were roughly evenly divided between those who arrived by car and those who arrived on foot. Ninety percent of all visitors arriving on foot lived within 2km, compared to only 20% of visitors arriving by car. Almost eighty percent of all visitors arriving by car (excluding holiday makers) lived within 10km, with 50% living within 4km. The overall median distance from site (across the study area) for non-tourist visitors was 1.7km.

5.34 From examination of Map 4 in Fearnley et al[79] the vast majority of South-Hampshire based visitors (irrespective of mode of transport) to Chichester Harbour lived south of the A27 in a band from Emsworth (in Havant borough) to south-west Chichester city. Emsworth and South Hayling in Havant borough, and Chichester city itself were the most significant sources of local visitors to Chichester Harbour, while East Wittering makes a contribution that is not insignificant. However, visitors did arise from as far afield as Horndean in East Hampshire (approximately 8km to the north-west). The projected increase in visitors cannot therefore be entirely attributed to the Local Plan area any more than it can be stated that the Local Plan area will not be contributing visitor pressure along other sections of frontage. However, it is reasonable to assume that significant new development within the Chichester Local Plan area will make a significant contribution to increased visitor pressure in Chichester Harbour.

[75] Stillman, R. A., West, A. D., Clarke, R. T. & Liley, D. (2012) Solent Disturbance and Mitigation Project Phase II: Predicting the impact of human disturbance on overwintering birds in the Solent. Report to the Solent Forum.
[76] Planning application forms and guidance notes: Chichester District Council [accessed 05/12/22]
[77] Fearnley, H., Clarke, R. T. & Liley, D. (2010). The Solent Disturbance & Mitigation Project. Phase II - On-site visitor survey results from the Solent region. ©Solent Forum /Footprint Ecology
[78] Stillman, R. A., West, A. D., Clarke, R. T. & Liley, D. (2012) Solent Disturbance and Mitigation Project Phase II: Predicting the impact of human disturbance on overwintering birds in the Solent. Report to the Solent Forum.
[79] Fearnley, H., Clarke, R. T. & Liley, D. (2010). The Solent Disturbance & Mitigation Project. Phase II - On-site visitor survey results from the Solent region. ©Solent Forum /Footprint Ecology

Medmerry Nature Reserve was completed in autumn 2013 and has the status of '*Identified Compensatory Habitat*'. One of the specific objectives of the scheme is to create a new extensive network of public and permissive rights of way, which will be managed in the long term. Given its sheer size, the creation of an extensive network of footpaths and the fact that it is promoted as a visitor attraction it is likely to form a recreational draw and the same principles regarding an adverse effect at Chichester Harbour should therefore apply to Medmerry.

5.35 Phase 3 of the Solent Disturbance and Mitigation Project identified that a 5.6 km zone of influence should be applied around the European sites and that mitigation for recreational pressure impacts would need to be associated with all new housing within this zone. Chichester District Council has considered mitigation measures produced from the Solent Disturbance and Mitigation Project (Phase 3) to establish measures that prevent and where possible reduce the cumulative impacts of recreational pressures placed upon European Sites.

5.36 This is recognised in the Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat: '*It is Natural England's advice that all net increases in residential development within the 5.6km 'Zone of Influence' are likely to have a significant effect on the Chichester and Langstone Harbours SPA either alone or in-combination with other developments and will need to be subject to the provisions of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended). In the absence of appropriate avoidance and/or mitigation measures that will enable the planning authority to ascertain that the development would not adversely affect the integrity of the SPA, planning permission will not be granted because the tests for derogations in Regulation 64 are unlikely to be met. Furthermore, such development would not have the benefit of the presumption in favour of sustainable development in the National Planning Policy Framework.*

Appropriate avoidance/mitigation measures that are likely to allow the planning authority to ascertain that there will be no adverse effect on the integrity of the SPA will comprise:

a) A contribution in accordance with the joint mitigation strategy outlined in the Bird Aware Solent Strategy; or

b) A developer provided package of measures associated with the proposed development designed to avoid any significant effect on the SPA, provided and funded in-perpetuity; or

c) A combination of measures in (a) and (b) above.

Avoidance/mitigation measures will need to be phased with development and shall be maintained in perpetuity. All mitigation measures in (b) and (c) above must be agreed to be appropriate by Natural England through the Habitats Regulations Assessment process...'

5.37 Other protective measures for Chichester & Langstone Harbours SPA/Ramsar, Pagham Harbour SPA/Ramsar, Solent & Dorset Coast SPA and Solent Maritime SAC included within policy text include:

With regard to Pagham Harbour SPA/Ramsar and Medmerry Compensatory Habitat Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat states: '*Net increases in residential development within the 3.5km 'Zone of Influence' are likely to have a significant effect on the Pagham Harbour SPA either alone or in-combination with other developments and will need to be subject to the provisions of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended). In the absence of appropriate avoidance and/or mitigation measures that will enable the planning authority to ascertain that the development would not adversely affect the integrity of the SPA, planning permission will not be granted because the tests for derogations in Regulation 64 are unlikely to be met. Furthermore, such development would not have the benefit of the presumption in favour of sustainable development in the National Planning Policy Framework.Net increases in residential development, which incorporates appropriate avoidance/mitigation measures, which would avoid any likelihood of a significant effect on the SPA, will not require 'appropriate assessment'. Appropriate avoidance/mitigation measures that are likely to allow the planning authority to ascertain that there will be no adverse effect on the integrity of the SPA will comprise:*

a) A contribution towards the appropriate management of the Pagham Harbour Local Nature Reserve through the joint Chichester and Arun Scheme of Mitigation in accordance with the LNR Management Plan; or

b) *A developer provided package of measures associated with the proposed development designed to avoid any significant effect on the SPA; or*

c) *A combination of measures in (a) and (b) above.*

Avoidance/mitigation measures will need to be phased with development and shall be maintained in perpetuity. All mitigation measures in (a), (b) and (c) above must be agreed to be appropriate by Natural England in consultation with owners and managers of the land within the SPA.'

- Policy NE5: Biodiversity & Biodiversity Net Gain states: '*All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding an adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks including: A. internationally designated sites (SPA, SAC, Ramsar)*'
- Policy NE5: Biodiversity & Biodiversity Net Gain also states: '*Planning permission will be granted for development where it can be demonstrated that all the following criteria have been met… Development proposals that will have an impact on international, national, locally designated sites and irreplaceable habitats will be require to meet the following:… development proposals with the potential to impact on one or more international site(s) will be subject to a HRA to determine the potential for likely significant effects. Where likely significant effects may occur, development proposals will be subject to Appropriate Assessment.*'
- Policy I1: Infrastructure Provision: '*The Council will work with partner organisations to coordinate infrastructure provision to ensure that individual and cumulative development is supported by the timely provision of adequate infrastructure, facilities, and services.' This may include recreational provision to ensure no adverse effects result*.'
- Policy A18: Thorney Island: '*All development proposals should seek to enhance the overall character of the Island as well as support opportunities for habitat creation. Proposals must mitigate any adverse impacts on local infrastructure and ecology, preserve the character of the surrounding area and take opportunities to increase public access. Proposals must avoid adverse impacts on the Chichester Harbour ANOB/SAC/SPA and Ramsar designations…*'
- Policy A6: Land West of Chichester: '*Taking into account the site specific requirements, development should: 15. Be planned with special regard to the need to achieve nutrient neutrality and mitigate potential impacts of recreational disturbance on the Chichester Harbour SAC/SPA/Ramsar including contributing to strategic access management*.'
- Policy A7: Land at Shopwyke (Oving Parish): '*Taking into account the site specific requirements, development should: Be planned with special regard to the need to mitigate potential impacts of recreational disturbance on the Chichester Harbour SAC/SPA/Ramsar including contributing to any strategic access management issues*.'
- Policy NE6: Chichester's Internationally and Nationally Designated Habitats: '*Development will only be permitted where it would not lead to an adverse effect upon the integrity, either alone or in-combination, directly or indirectly, on internationally, European and nationally important habitat sites." This policy includes protection for habitats and species against increased water consumption, increased nutrient inputs, and recreational disturbance as well as protection for functionally linked land*.'
- With specific regard to Medmerry Nature Reserve, Policy NE6 states that '*development proposals for any net increase in overnight accommodation within the Zones of Influence for… Medmerry Compensatory Habitat will be required to provide appropriate avoidance/mitigation measures in accordance with Policy NE7*.'

5.38 With this wide ranging policy framework to ensure the protection of European sites in it is considered that this impact pathway will not result in adverse effect on the integrity of these European sites.

Recommendations:

5.39 The following recommended policy text changes are made to ensure full robustness of the Local Plan Policy Framework:

- Policy E9: Caravan and Camping Sites: To ensure this policy provides a robust framework to ensure the protection of European sites, it is recommended that policy text is amended as follows (amendments in **bold**, addition <u>underlined</u>, removal ~~strikethrough~~):

*'~~**Whether there is a requirement**~~ **The degree of protection considered desirable in order** to avoid disturbance to sensitive sites of ecological value (including ensure no adverse effects on integrity of sensitive European designated wildlife sites occurs) or to protect the tranquillity and character of the countryside, Chichester Harbour Area of Outstanding Natural Beauty and the setting of the National Park, Pagham Harbour and the undeveloped coast; and'*

- Policy NE12: Development around the Coast: It is recommended that point 1 and 2 is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough~~)

'*1. There are no harmful effects on or net loss of nature conservation or areas of geological importance ~~**in particular**~~ within the Chichester and Pagham Harbours and Medmerry Realignment (including no adverse effects on the associated European designated sites);*

*2. ~~**If**~~ the development provides recreational opportunities that ~~**they**~~ do not adversely affect the character, environment and appearance of the coast and Chichester Harbour Area of Outstanding Natural Beauty or ~~**damage**~~ **result in adverse effects on** the integrity to European designated wildlife sites'*

Reduced Water Quality

5.40 The Environment Agency's Weight of Evidence approach identifies the site's current water quality status in terms of macroalgal and phytoplankton markers as poor for Chichester & Langstone Harbours SPA/Ramsar. Much of the development in the southern part of the Local Plan area is served by WwTW which discharge into the WFD water body of Chichester Harbour which includes the Solent Maritime SAC, and Chichester and Langstone Harbours SPA and Ramsar site. The main relevant WwTW are Apuldram (Chichester) WwTW, Bosham WwTW and Thornham WwTW.

5.41 Natural England's Site Improvement Plan (SIP) for the Solent states that water pollution affects a range of habitats and bird species through eutrophication (in the case of birds through cascading effects mediated through the food chain) and direct toxicity. Sources include both point-source discharges (e.g. from flood alleviation / storm discharges and Wastewater Treatment Works; WwTWs) and diffuse nitrogen leaching, such as from agricultural and road surface run-off. Currently, it is now advised that nitrogen and phosphorus concentrations entering the Solent are continuously monitored to identify the scale of nutrient inputs to the marine environment.

5.42 The Local Plan mentions that in February 2018 the Chichester Harbour designated Site of Special Scientific Interest was downgraded from 'Unfavourable – recovering' to 'Unfavourable – no change'. Further assessment during 2019/20 found that more than 3,000ha of the intertidal parts of Chichester Harbour were now 'Unfavourable – declining'. A significant portion of the nitrogen loading in the marine environment derives from agriculture, such as from the routine application of fertilisers and other factors (e.g. livestock accessing freshwater bodies). This source is being addressed through several strategic mitigation solutions (e.g. through Defra's Catchment Sensitive Farming initiative and does not lie within the control of Local Planning Authorities (i.e. agricultural land is not usually allocated in Local Plans). However, a smaller, yet in-combination still significant, source of nitrogen is treated sewage effluent from WwTWs. Potential adverse impacts of treated wastewater on European sites are typically prevented through the Review of Consents process undertaken by the Environment Agency. This sets permit limits for water quality parameters (such as nitrogen) in WwTWs discharging to sensitive waterbodies. However, there is growing uncertainty whether future housing and the associated wastewater output can be accommodated without detrimental effects on European sites. NE has introduced a requirement of nutrient neutrality for new developments in the Solent region, including residential dwellings, hotels / holiday accommodation and tourism attractions. This applies to development of all sizes, even one additional dwelling, which could add to the existing nutrient burden in Solent's European sites. NE's advice note (the latest version of which is Version 5 dated March 2022[80]) includes a nutrient neutrality calculation, which needs to be completed for any of the above identified types of development. Much of the southern section of Chichester District lies within the hydrological catchment of the Solent European sites and Chichester and Langstone Harbour and therefore most sites allocated in the emerging LP will need to be supported by a detailed nutrient budget.

5.43 The first five years of nutrient budget is most important in identifying whether there is sufficient mitigation capacity available to ensure deliverability of the Local Plan as every Local Plan is reviewed

[80] Nutrient neutrality: Chichester District Council

every five years in any event. The annual nutrient budget (with 20% buffer) for the first five years of the plan is 230.81 kg/N/yr, which is associated with the strategic allocation at Nutbourne and Hambrook (by far the allocation with the greatest mitigation requirement in the first five years of the Plan). The Chichester City Parish allocation, the Highgrove Farm allocations, the gypsy intensification sites, as well as windfall for general housing and gypsy and traveller and travelling showpeople also require mitigation. Therefore, there would need to be sufficient mitigation delivered over the first five years of the plan period to offset 230.81 kg/N/yr. The mitigation would also need to be provided in a timely manner i.e. for each development site the mitigation would need to be secured and in place before the development could be occupied.

Table 5. Summary of Nutrient Nitrogen Budget for Chichester District for the whole plan period (2021 to 2039)

Site	No of dwellings ultimately discharging wastewater and surface water to Chichester Harbour	No of dwellings ultimately discharging solely surface water to Chichester Harbour	Stage 4 – Annual Nutrient Budget	Annual nutrient budget with 20% buffer (kg/N/yr)
Strategic Sites				
West of Chichester	0	1,600 – wastewater re-routed to Tangmere	-763.92	0
Western Section: Westhampnett	0	200 – wastewater re-routed to Tangmere	-61.13	0
Southern Gateway	180	0	136.6	163.92
Bosham Highgrove Farm (including 3 gypsy and traveller pitches)	248	0	43.19	51.83
Nutbourne & Hambrook	300	0	117.43	140.92
Southbourne BLD	1,050	0	410.67	492.80
Southbourne BLD gypsy and traveller pitches and travelling showpeople plots	24	0	11.44	13.73
Parish Allocations				
Chichester City	270	0	211.75	254.10
Fishbourne	30	0	8.81	10.57
Westbourne	30	0	16.08	19.30
Saved Allocations				
Land at Highgrove Farm	50	0	11.34	13.61
Gypsy Intensification Sites and Windfall				
Tower View Nurseries, Funtington	1	0	1.89	2.27
Connors/Scant Road East	1	0	1.89	2.27

Site	No of dwellings ultimately discharging wastewater and surface water to Chichester Harbour	No of dwellings ultimately discharging solely surface water to Chichester Harbour	Stage 4 – Annual Nutrient Budget	Annual nutrient budget with 20% buffer (kg/N/yr)
Sunrise, Southbourne	1	0	1.89	2.27
Greenacre, Cemetery Lane, Westbourne	4	0	7.57	9.08
Anticipated Windfall (general housing and gypsy, traveller and travelling showpeople)	-	-	493.72	592.47
	Total			
	2189	**1800**	**649.22 kg/N/yr**	**1769.13 kg/N/yr**

Table 6. Summary of Nutrient Nitrogen Budget for Chichester District for the first five years of the plan (2021 to 2026)

Site	No of dwellings ultimately discharging wastewater and surface water to Chichester Harbour	No of dwellings ultimately discharging solely surface water to Chichester Harbour	Stage 4 – Annual Nutrient Budget	Annual nutrient budget with 20% buffer (kg/N/yr)
		Strategic Sites		
West of Chichester	0	604 (38%) – wastewater re-routed to Tangmere	-290.29	0
Western Section: Westhampnett	0	182 (91%) – wastewater re-routed to Tangmere	-55.63	0
Southern Gateway	0	0	0	0
Bosham Highgrove Farm	10 (4%)	0	1.72	2.06
Nutbourne & Hambrook	131 (43%)	0	50.49	60.59
Southbourne BLD	0	0	0	0
		Parish Allocations		
Chichester City	10 (4%)	0	8.47	10.16
Fishbourne	0	0	0	0
Westbourne	0	0	0	0
		Saved Allocations		
Land at Highgrove Farm	25 (50%)	0	5.67	6.80
		Gypsy Intensification Sites		

Site	No of dwellings ultimately discharging wastewater and surface water to Chichester Harbour	No of dwellings ultimately discharging solely surface water to Chichester Harbour	Stage 4 – Annual Nutrient Budget	Annual nutrient budget with 20% buffer (kg/N/yr)
Tower View Nurseries, Funtington	1	0	1.89	2.27
Connors/Scant Road East	1	0	1.89	2.27
Sunrise, Southbourne	1	0	1.89	2.27
Greenacre, Cemetery Lane, Westbourne	4	0	7.57	9.08
Anticipated Windfall (general housing and gypsy, traveller and travelling showpeople)	-	-	112.76	135.30
	Total			
	183	**786**	**-153.57 kg/N/yr**	**230.81 kg/N/yr**

Mitigation Contained in the Local Plan

5.44 While mitigation to offset the identified 230.81 kgN/ha/yr does not need to be secured at this stage (provided it is identified before the relevant sites are consented for development) there does need to be adequate confidence that sufficient mitigation is likely to be available. As an example, to offset 230.81 kgN/yr approximately 11 additional hectares of arable land would need to be removed from production and rewilded. Sufficient offsetting for the first five years of the Local Plan period should be achievable without particular difficulty. The West of Chichester and Westhampnett sites do not require mitigation for the purposes of the overall budget. However, the fourth column shows that both of these sites do hold some 345.92 kg/N/yr as surplus mitigation. Planning applications are currently using sites at Chilgrove Farm and another at East Dean for mitigation purposes. Both of these have overarching legal agreements in place to manage the sale of credits. Other applications have identified their own smaller mitigation schemes. Additional strategic mitigation sites are in the process of coming forward, subject to planning permission, and there is also the wider Natural England Mitigation Scheme which could provide mitigation as required in the future.

5.45 The emerging Local Plan already refers to water quality in the Solent and the concept of nutrient neutrality in Policy NE18: Nutrient Neutrality. It states that '*Development involving an overnight stay (such as residential or tourist development) that discharges into Chichester and Langstone Harbour SPA/Ramsar (either surface water, non mains drainage development or through wastewater treatment works) will be required to demonstrate that it will be nutrient neutral for the lifetime of the development, either by its own means or by means of agreed mitigation measures*'. This policy text aligns the plan document with NE's requirement and places the onus on developers to ensure that there will be no net nutrient input to the Solent from future development.

5.46 Additionally, the supporting text from Policy NE16: Water Management and Water Quality states that the '*Policy helps to reduce the flow going to WwTW by requiring that all new dwellings achieve the tighter building regulations water consumption target. It is noted that Portsmouth Water and Southern Water have targets to reduce water consumption to 100 litres per person per day (lppd) by 2040, a lower figure than the current most stringent Building Regulations target of 110 lppd… The Water Management and Water Quality policy applies additional restrictions to development in the Apuldram (Chichester) WwTW catchment in order to protect the water environment of Chichester Harbour. The catchment is affected by a high level of groundwater infiltration to the sewer network which has historically led to high winter flows to the treatments works meaning the storm overflow has been in operation for significant periods of time. The Environment Agency and Southern Water agreed a joint*

position statement in December 2018, which is a material consideration in determining planning applications in the catchment.' A position statement to manage development in the Thornham WwTW catchment where headroom is environmentally constrained was also agreed in November 2021. These stringent targets will assist in the reduction of nutrients entering the WwTW which discharge to the Chichester Harbour area.

5.47 The Policy itself states that "*New development outside of the settlement boundaries of Chichester, Fishbourne and Stockbridge will not drain into the Apuldram WwTW*" and therefore the wastewater will not drain into Chichester Harbour. This is shown in the nutrient calculations where the wastewater from the strategic developments at "West of Chichester" and "Western Section: Westhampnett" (a total of 1800 dwellings) will be diverted to Tangmere WwTW. The West of Chichester development also proposes a Country Park removing land from agricultural production for a positive purpose that can have a considerable nitrogen reduction benefit.

5.48 Chichester District Council website also refers to the Partnership for South Hampshire (PfSH), which is in the process of establishing a programme for land use change in the wider Solent region in partnership with the Hampshire & Isle of Wight Wildlife Trust (HIWWT). Their published list of potential mitigation schemes as of November 2022 includes a scheme at Chilgrove Farm, referred to above, which would serve the Apuldram, Thornham and Bosham WwTWs[81]. This will enable developers to purchase agricultural land strategically to be managed to reduce nitrogen leaching. Overall, the emerging Local Plan already refers to the main existing pillars of nitrogen mitigation, implying that any allocated development would not materially contribute to in-combination water quality impacts in the Solent.

5.49 Given that there are policies within the Local Plan that specifically prevent the acceptance of development without the developer having provided evidence of nutrient neutrality in perpetuity, that the amount of rewilding or other mitigation required for the first five years of the plan period is less than 14% of the overall plan period nutrient budget, and that the council is working with the Partnership for South Hampshire and other partners, to identify potential mitigation schemes to be utilised for development within the Local Plan area, it can be concluded that there will be no adverse effects of the plan on the integrity of the Chichester and Langstone Harbours SPA and Ramsar site and the Solent Maritime SAC regarding water quality and nutrient neutrality in combination with other plans and projects.

Coastal Squeeze

5.50 Loss of estuarine habitats could be an issue where greenfield sites are developed but could also be an issue where intensification of existing residential areas through brownfield development might be an argument for maintaining or strengthening existing defences ('hold the line' or 'advance the line'). No new development areas identified in the Local Plan are sufficiently close to the SPA/Ramsar site to constrain any managed retreat that may be required in the future to allow the SPA/Ramsar site to respond to sea level rise and none would require the coastal defence policies identified in the Shoreline Management Plan to be altered (indeed, Policy NE14 Integrated Coastal Zone Management for the Manhood Peninsula specifically states that proposals and initiatives will be supported where they address proposals for the coastline and coastal communities set out in the Coastal Defence and Shoreline Management Plans).

5.51 Although the development of Thorney Island set out in Policy S17 Thorney Island could theoretically lead to development that constrained the natural processes of the SPA/Ramsar site if care was not taken, policy text specifically states that '*Proposals must mitigate any adverse impacts on the Chichester Harbour ANOB/SPA/SAC and Ramsar designations and comply with Policy NE (Chichester Harbour ANOB and associated ANOB Management Plan and SPD'*. This is further reflected in the policy text itself which states that '*All development proposals should seek to enhance the overall character of the Island, as well as support opportunities for habitat creation. Proposals must mitigate any adverse impacts on local infrastructure and ecology, preserve the character of the surrounding area and take opportunities to increase public access".*. It also states that aviation or noisy sports are unlikely to be considered acceptable. Given the explicit statement in policy that any redevelopment must not adversely affect the SPA/Ramsar site it is considered that there would be no adverse effects

[81] Potential-Mitigation-Schemes-November-2022.pdf (push.gov.uk) [Accessed 28/11/2022]

on the integrity of the European sites as a result of Plan policy. There are no other plans or projects which would operate 'in combination' with the Local Plan.

Loss of Functionally Linked Supporting Habitat for Birds

5.52 Chichester & Langstone Harbours SPA and Ramsar sites are notified partly for their over-wintering populations of Brent geese and wading bird species. However, studies[82] have identified that many feeding and roosting sites around the Solent fall outside of the statutory nature conservation site boundaries. The majority of Brent Goose feeding sites are amenity/recreation grasslands with little intrinsic nature conservation interest, and therefore are vulnerable to loss or damage from development. This also applies to some high tide wader roosts in the Solent.

5.53 There are several parishes that support functionally linked habitat for over-wintering populations of Brent geese and wading bird species within the Chichester District. These are summarised as follows:

- **Chidham and Hambrook** – Chidham holds large pockets of functionally linked habitat ranking from *Core/Primary* to *low use.* It is therefore considered that the delivery of c. 300 residential dwellings within the Parish could lead to the loss of this essential habitat. However, the area of Hambrook does not hold functionally linked habitat. It is therefore advised that housing development if focused towards the north of Chidham and Hambrook Parish (north of the A259) would avoid loss of functionally linked habitat.
- **Southbourne Broad Location for Development** - holds pockets of functionally linked habitat ranking from *primary support areas* to *low use*. It is therefore considered that the Broad Location for Development at Southbourne of c. 1,050 residential dwellings which encompasses a Solent wader and brent goose parcel (C45), a secondary support area of approximately 64 ha, that coincides ith approximately 33% of the Broad Location for Development (196.5 ha), could lead to the loss of this essential habitat dependent on where development is brought forward.
- **Fishbourne** – holds pockets of functionally linked land to the south of the village ranging core/primary to low use. It is therefore considered that the allocation of c. 30 residential dwellings could lead to the loss of this essential habitat dependent on where residential dwellings are allocated within the parish. It is advised that development is located appropriately to avoid functionally linked land.
- **Thorney Island** – also holds extensive areas of functionally linked land from core/primary to low use/ It is therefore considered that development on Thorney Island could lead to the loss of this essential habitat dependent on where development is located on the island. It is advised that development is located appropriately to avoid functionally linked land.

5.54 As such it was considered at the screening stage that development within these Parishes could lead to likely significant effects to over-wintering populations of Brent geese and wading bird species.

5.55 In the HRA undertaken for Chichester District Council in 2014 it was reported that the Council had *'indicated in discussions over this HRA that policy recommendations to protect locations outside of the SPA/ Ramsar site of value to Brent geese and waders would be addressed within the Site Allocations DPD and Neighbourhood Plans*'.

5.56 Nonetheless, policy within the Local Plan includes policy that provides protection to European designated sites as follows:

5.57 Policy NE5: Biodiversity and Biodiversity Net Gain states: *'All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological network… Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations;'*

5.58 The Local Plan also provides Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat which states in relation to the Solent Waters and Brent Goose sites:

[82] King, D. (2010) Solent Waders and Brent Goose Strategy 2010. Hampshire and Isle of Wight Wildlife Trust.

'*The provisions of this policy do not exclude the possibility that some residential schemes either within or outside the Zone of Influence might require further assessment under the Habitats Regulations. For example, large schemes, schemes proposing bespoke or alternative avoidance/mitigation measures, or schemes that impinge on the supporting habitats identified by the Solent Waders and Brent Goose Strategy. Such schemes will be assessed on their own merits under Regulation 63 (appropriate assessment), and, subject to advice from Natural England. Where mitigation for any impact upon supporting habitats is required this should follow the guidance given in the Solent Waders and Brent Goose Strategy*'. And goes into further detail within the supporting text to say '*For both Chichester and Pagham Harbours some of the bird species for which they are designed, Brent Geese in particular, use functionally linked supporting habitats around the SPA for feeding and roosting. Developments on or adjacent to these areas can have an impact on the SPAs separate to and additional to the impact of recreational disturbance. For Chichester and Langstone Harbours SPA, the Solent Waders and Brent Goose Strategy (https://solentwbgs.wordpress.com/page-2/) identifies the areas of supporting habitat and grades them into four categories: core areas, primary support areas, secondary support areas and low use areas. Interim guidance on offsetting and mitigation requirements has been produced*.[83]' In line with these policies, any development impacting on parcels of land which are functionally linked to the SPA within the Solent Waters and Brent Goose Strategy will require a project level HRA to identify appropriate avoidance and mitigation strategies and to ensure no adverse effect.

5.59 And finally, where necessary, such as for Chidham and Hambrook Parish, residential allocations text has been incorporated into the Broad Location for Development policy to ensure no loss of functionally linked habitat as follows: '*6. Ensure that development avoids harm to protected species and existing important habitats features and facilitates the achievement of biodiversity net gain and facilitates the creation of high levels of habitat connectivity within the site and to the wider Green Infrastructure network and identified Strategic Wildlife Corridors within the parish. This includes the provision of appropriate buffers as necessary in relation to important habitats which are being retained and/or created. 7. Successfully mitigate potential impacts on the Chichester Harbour SAC/SPA/Ramsar, including contributing to any strategic access management issues (including on-site mitigation where required as part of the Habitats Regulations Assessment), and potential for loss of functionally linked supporting habitat.*'

5.60 The plan provides a robust policy framework including a requirement for project level HRA and, if loss of functionally linked land would be significant, specific requirements within the Broad Location for Development policies for avoiding and/or mitigating the loss of functionally linked land. Therefore, before any development within Southbourne or other parishes, could be consented they would be required to demonstrate no significant effect, or appropriately mitigate impacts on the Solent waders and brent goose areas. With these policies in place, it can, therefore, be concluded that the Local Plan has an adequate policy framework to protect European sites, and will therefore ensure there will be no adverse effect on the integrity of European sites with regards to functionally linked habitat.

Atmospheric Pollution

5.61 The relevant part of the Solent Maritime SAC within Chichester (Chichester Harbour) is located within 200m of the A259 and the A27. Five transects have been modelled along these two roads; SLDR, CLSM1, CLSM2, CLSM3 and SOME. The closest points of each transect has been shown within the tabled below. The transects have a baseline nitrogen deposition rate of between 11.83 kgN/ha/yr and 20.92 kgN/ha/yr depending on location. In the most part nitrogen deposition is therefore well below the most stringent critical load (20 kgN/ha/yr) for saltmarsh and intertidal mudflat, the relevant SAC and SPA habitats in these locations according to www.magic.gov.uk. Two locations are just above the critical load in the base year at 20.65 kgN/ha/yr and 20.92 kgN/ha/yr at SLDR and CLSM1 respectively. However, as can be seen in the table, in future years without (Future Year – DN) or even with the Local Plan contribution to the in-combination total (Future Year – DS) all closest points to the roadside are well below the critical load. Going beyond nitrogen and examining NOx and ammonia, at no point on the modelled transects are 2039 concentrations forecast to exceed the respective critical levels of 30 μgm^{-3} and 3 μgm^{-3}.

[83] swbgs-mitigation-guidance-oct-2018.pdf (wordpress.com) [Accessed 28/11/2022]

Table 7. Modelled nitrogen deposition results for road links relevant to Solent European sites (in-combination)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
CLSM1	A27 (A3(M) Junction)	20	20.92	17.63	18.66	1.02
CLSM2	A259 (Nutbourne)	20	11.83	10.07	10.20	0.13
CLSM3	A259 (Fishbourne)	20	14.18	12.02	13.24	1.22
SOME	A259 (Bosham)	20	14.59	12.48	14.00	1.52
SLDR	A27 (West of A2030)	20	20.65	17.45	18.54	1.10

5.62 This is due to the background deposition rate being likely to decrease rather than increase as improvements in background air quality are achieved in line with central government initiatives and improvements in emission technology (such as the further roll out of the Euro6/VI emissions standard which only became mandatory in 2014/2015). This is supported by oxidised nitrogen deposition and NOx concentration trend data available on APIS for the 1km (for NOx) and 5km (for nitrogen deposition) grid squares (1km for 2019) within which the relevant parts of the SPA/SAC are situated. For example, this indicates that background NOx concentrations reduced between 2014 and 2019 (the most recent year for which data are available) from 13.6 μgm^{-3} to 12.1 μgm^{-3} at transect CLSM3 near Fishbourne. Similarly, background oxidised nitrogen deposition rates (those attributable to combustion such as vehicle exhausts) reduced by 0.2 kgN/ha/yr between 2005 and 2019.

5.63 Given this trend, it is unlikely that increased traffic flows as a result of development in the Local Plan area, even in combination with other projects and plans would result in a sufficiently large increase to push it over the critical load. Furthermore, it is important to note that the experimental studies that underlie conclusions regarding the sensitivity of saltmarsh to nitrogen deposition, and the selection of 20 kgN/ha/yr as the minimum critical load have '… *neither used very realistic N* [nitrogen] *doses nor input methods i.e. they have relied on a single large application more representative of agricultural discharge*'[84], which is far in excess of anything that would be deposited from atmosphere. For coastal saltmarshes such as those for which Solent Maritime SAC is partly designated nitrogen inputs from air are not as important as nitrogen effects from other sources because the effect of any deposition of nitrogen from atmosphere is likely to be dominated by much greater flushes of more readily utilized nitrogen from marine, fluvial or agricultural sources. This is reflected on APIS itself, which states regarding saltmarsh that '*Overall, N deposition* [from atmosphere] *is likely to be of low importance for these systems as the inputs are probably significantly below the large nutrient loadings from river and tidal inputs*'[85]. Moreover, the nature of intertidal saltmarsh in this area means that there is flushing by tidal incursion twice per day. This is likely to further reduce the role of nitrogen from atmosphere in controlling botanical composition.

5.64 Since the NOx concentrations and nitrogen critical load for the relevant roadside habitats in 2040 are not forecast to be exceeded, no adverse effect on the integrity of the coastal European sites will arise, either alone or in combination with other plans and projects.

5.65 Notwithstanding this conclusion, the Local Plan does include several measures that can be expected to result in further improvement in roadside air quality, beyond that achieved by improvements in EU-mandated emissions technology. Air quality mitigation measures can be broadly classified as four types:

[84] UK Air Pollution Information System website [accessed 21/04/15]: http://www.apis.ac.uk/node/968
[85] APIS website [accessed 06/06/16]: http://www.apis.ac.uk/node/968

- Behavioural measures and modal shift - reducing the amount of traffic overall;
- Traffic management - modifying traffic behaviour to control where emissions are generated;
- Emissions reduction at source - reducing the emissions level per vehicle; and
- Roadside barriers - reducing the impact on the public of emissions.

5.66 The measures identified in the Chichester Local Plan document cover all of these categories, except for the fourth (roadside barriers) which is not within the remit of local planning policy. The Chichester Local Plan document contains positive measures that should aim to mitigate or avoid the likelihood of significant adverse effects from reduced air quality:

- Policy NE21: Air Quality: This policy aims to improve air quality within the district of Chichester. This includes minimising traffic generation, Air Quality Management Areas and air quality assessments.
- Policy T2: Transport and Development: This policy ensures that the development is safe, sustainable, connected and accessible by active and public travel networks and the use of air quality assessments where significant adverse effects are likely.
- Policy T3: Active Travel – Walking and Cycling Provision: Promotes sustainable transport and prioritises walking an cycling to remove vehicles from the roads.
- Policy NE1: Stand-alone Renewable Energy: The provision of renewable energy has the ability to reduce atmospheric pollution contributions.

5.67 These policies form a protective framework to help to reduce atmosphere pollution contributions and, coupled with the results of the air quality modelling, it is thus considered that the Plan will not result in an adverse effect in integrity on this European site.

6. Pagham Harbour SPA and Ramsar Site

Introduction

6.1 Pagham Harbour comprises an extensive central area of saltmarsh and tidal mudflats, with surrounding habitats including lagoons, shingle, open water, reed swamp and wet permanent grassland. The intertidal mudflats are rich in invertebrates and algae and provide important feeding areas for birds.

6.2 Most of the site is a Local Nature Reserve managed by West Sussex County Council.

Features of European Interest

6.3 Pagham Harbour SPA qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive[86].

6.4 During the breeding season:

- Common Tern *Sterna hirundo*: 0.5% of the breeding population in Great Britain (1996); and
- Little Tern *Sternula albifrons*: 0.3% of the breeding population in Great Britain (5-year mean, 1992-1996).

6.5 Over winter:

- Ruff *Philomachus pugnax*: 1.4% of the population in Great Britain (5-year peak mean 1995–1999); and

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

6.7 Over winter:

- Dark-bellied Brent Goose *Branta bernicla bernicla*: 0.6% of the population (5-year peak mean 1991/2–1995/6).

6.8 Pagham Harbour Ramsar site qualifies under one of the nine **Ramsar** criteria[87].

Table 8. Pagham Harbour Ramsar site criteria

Ramsar criterion	Description of criterion	Pagham Harbour
6	A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.	Dark-bellied brent goose *Branta bernicla bernicla*: 2512 individuals, representing an average of 1.1% of the populations (5-year peak mean 1998/99-2002-03) Black-tailed godwit *Limosa limosa islandica*: 377 individuals, representing an average of 1% of the population (5-year peak mean 1998/99–2002/03).[88]

6.9 It is important to note that this area also includes the Medmerry Realignment Scheme which was created in order to provide compensatory habitat for future effects on the Solent European sites as a

[86] http://jncc.defra.gov.uk/pdf/SPA/UK9012041.pdf [accessed 10/10/2018]
[87] http://jncc.defra.gov.uk/pdf/SPA/UK9012041.pdf [accessed 10/10/2018]
[88] This population was identified subsequent to designation, for possible future consideration.

result of coastal defence work. However, Medmerry has already been discussed extensively in the preceding chapter covering Chichester Harbour SPA and Solent Maritime SAC (since the realignment was intended to compensate for coastal squeeze losses at the Solent Maritime SAC).

Conservation Objectives[89]

6.10 '*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;*

- 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.'

Historic Trends and Current Pressures

6.11 The majority of the site is managed as a nature reserve by West Sussex County Council. Historical land drainage for agricultural purposes is being addressed through the Local Nature Reserve Management Plan and Management Agreements, while pollution from inadequate treatment of sewage discharges is reviewed by the Environmental Agency.

6.12 Studies by the Environment Agency indicate that existing sewage discharges are not having a significant adverse effect on the integrity of the Pagham Harbour SPA/Ramsar site.

6.13 The latest Natural England condition assessment of Pagham Harbour SSSI indicated that 93% of the site was in favourable condition. An updated condition assessment is due to take place early 2023.

Key Environmental Conditions

6.14 The following key environmental conditions have been identified for the site:

- Sufficient space between the European site and development to allow for managed retreat of intertidal habitats (to avoid coastal squeeze);
- Maintenance of appropriate hydrological regime;
- Unpolluted water;
- Absence of nutrient enrichment of water;
- Absence of non-native species; and
- Absence of disturbance.

Potential Effects Linking to the Local Plan

6.15 The screening assessment undertaken in the table in Appendix A identifies that the following policies and site allocations have the potential to link to these European designated sites and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs

[89] [accessed 10/10/2018]

- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development

Strategic Site Allocations

6.16 There are no strategic site allocations in close proximity to the SPA/Ramsar.

6.17 Potential linking impact pathways are as follows:

- Urbanisation
- Recreational pressure
- Coastal squeeze
- Water quality
- Loss of functionally linked supporting habitat for birds

Appropriate Assessment

Urbanisation

6.18 Policy E3: Addressing Horticultural Needs provides for new areas allocated for horticultural development such as commercial polytunnels and greenhouses and ancillary uses. The policies do not allocate any residential dwellings within these allocations. Although a development management policy is provided (Policy H9: Accommodation for Agricultural, Horticultural and other Rural Workers) to ensure the appropriate scale, positioning and use of existing and new buildings for rural workers. The closest parcel of land allocated for horticultural development is located south west of Sidlesham and is approximately 240m north and west of Pagham Harbour SPA and Ramsar. Urbanisation effects usually confer to impacts such as increase predation of birds from domestic cats, increased wildfire and arson and increased fly tipping. Given that the area allocated south of Sidlesham is very rural and the allocation is not for residential development. However, there may be potential for tied housing to the horticultural business this is likely to be small in scale and it is unlikely that a significant increase in these impacts would occur with any overnight accommodation linked to horticultural development, and as such this impact pathway is not considered to result in adverse effect in integrity of the European sites.

Recreational Pressure

6.19 Chichester District Council commissioned Footprint Ecology to undertake a visitor survey of those parts of the Pagham Harbour SPA/Ramsar site that fell within the Local Plan area[90] . According to Table 14 on page 26 of that report, approximately 53% of winter visitors and 76% of summer visitors to the western (Chichester District) parts of Pagham Harbour come from within the District (Selsey, Chichester City, Sidlesham, Lodsworth, Bosham, Mundham, Hunston, Emsworth/Southbourne and Midhurst). Three settlements (Selsey, Chichester and Sidlesham) make by far the greatest contribution to visitors to Pagham Harbour, accounting for 48% of all winter visitors and 66% of all summer visitors. Of these three settlements, Selsey is responsible for the majority of visitors. Moreover, approximately 96% of visitors with dogs (who are likely to have the greatest potential disturbance effect on SPA birds) live south of Chichester, emphasising the local catchment of the site. Policy NE7 (Development and Disturbance of Birds in Chichester and Langstone Harbour, Pagham Harbour Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat) of the Chichester Local Plan identifies the core recreational catchment on the Chichester side of the harbour as 3.5km and states that net increases in residential development within that zone will be required to provide mitigation for the SPA/Ramsar site.

[90] Cruickshanks, K. & Liley, D. (2012) Pagham Harbour Visitor Surveys. Unpublished report by Footprint Ecology. Commissioned by Chichester District Council.

6.20 Work was completed in 2010 by Arun District Council regarding visitor surveys for Pagham Harbour SPA. In summary, this work identified that 8.7% of the visitors to the Arun sections of the SPA/Ramsar site come from within 500m, 49.7% come from within 5km, 52.9% come from within 6km and 57.4 % come from within 10km. Beyond 10km the visitors origins are very dispersed. This indicates that the largest single contribution to visits to the SPA comes from the 5-6km zone. The study focused on visitors from Arun District.

6.21 Other settlements (including the other settlements mentioned above and relatively large nearby settlements in adjacent districts such as Bognor Regis) make a very small contribution in comparison e.g. 1-3% of visitors each to the parts of Pagham Harbour within Chichester District.

6.22 Clearly therefore, large amounts of new development at Selsey (in particular), Chichester city or Sidlesham would potentially have the greatest effect on visitor pressure within Pagham Harbour. The Chichester Local Plan currently does not plan for any strategic residential development in settlements located within 3.5km of the Harbour. In terms of Parish allocations, neither Selsey nor Sidlesham are being allocated further housing within the Local Plan and a total of 270 dwellings have been allocated for Chichester city (Policy A2) and a further 180 for Southern Gateway (Policies A4 & A5), however, Chichester city and Southern Gateway are outside the 3.5km core catchment area and therefore any contribution from Chichester city and Southern Gateway would be insignificant with regards to threats on the integrity of the SPA and Ramsar. Additionally, one Gypsy and Travellers sites (Land at Lakeside Barn (4 pitches) has been allocated north west of North Mundham on the east side of Hunston Road, south of Chichester City and within 3.5km of Pagham Harbour. Although a small number of pitches, these will contribute to the over all in-combination effect of recreation on the Pagham SPA and Ramsar.

6.23 There will of course be additional visitors due to development in surrounding authorities 'in combination' with that in the Local Plan area as well. However, the Footprint Ecology survey indicates that beyond the Local Plan area points of visitor origin to the Chichester parts of Pagham Harbour become highly dispersed and even larger settlements contribute a relatively small percentage of current visitors to the SPA/Ramsar site. The settlements outside the Local Plan area that were identified as making the highest contribution to current visitor activity within the Chichester parts of the SPA/Ramsar site were:

- Bognor Regis – 3% of winter visitors and 4% of summer visitors;
- Southampton, Hayling Island, Richmond-upon-Thames, Epsom & Ewell and Westergate/ Barnham/ Yapton – each of these settlements contributed 2% of winter visitors according to the survey and were dispersed across the south-east including London; no summer visitors covered by the survey came from these settlements. It can reasonably be concluded that most if not all of the visitors from these settlements were birders rather than conventional recreational visitors;
- Reigate/ Redhill and Merton - each of these settlements contributed 2% of summer visitors according to the survey and were dispersed across the south-east including London; no winter visitors covered by the survey came from these settlements. It can reasonably be concluded that the visitors from these settlements were holidaymakers, birdwatchers or similar.

6.24 All other settlements contributed 1% or less to visitor activity within the SPA/Ramsar site. At first glance it seems unusual that Bognor Regis in Arun district contributed so few visitors to the SPA/Ramsar site according to this survey, since it is by far the largest settlement near the site. However, the survey was specifically designed to target people coming from the Chichester district side and there were no survey locations on the Arun district side which explains the apparently low visitor contribution of Bognor Regis. The aforementioned visitor surveys commissioned by Arun Council have already demonstrated that Bognor Regis is the main contributory settlement to recreational activity on the eastern (Arun district) side of the SPA/Ramsar site.

6.25 According to the Arun Local Plan[91] there will be considerable new housing development at Bognor Regis from the combination of a 2,500 settlement west of Bersted (SD3) which at the time of writing has outline permission, 400 dwellings in Pagham South (SD1) and 800 dwellings in Pagham North (SD2) which will be over three sites all of which have outline permission and one with reserved matters[92].. This will clearly operate 'in combination' with any development within the Chichester District.

[91] Adopted Local Plan.pdf (arun.gov.uk) [Accessed 13/01/2022]
[92] Development sites | Arun District Council [Accessed 13/01/2022]

6.26 The Local Nature Reserve Management Plan states that 150,000 visits are made to Pagham Harbour each year. Provided that visitors adhere to designated access routes, there was not perceived to be an issue with disturbance (as of 2007). However, the Management Plan notes that any further increased numbers of visitors could create damaging levels of disturbance. Car parking arrangements (numbers and locations) help to limit the potential for excessive visitor presence. Nonetheless, the Management Plan does note that there are issues such as four-wheel drive and motorbike usage, and factors such as dog-fouling that do present threats to reserve integrity.

6.27 The implications of the survey results in terms of whether an adverse effect on integrity would result in the absence of mitigation need to be considered alongside the survey undertaken for Arun district. Given the current uncertainties over this issue therefore, the Council has taken a precautionary approach for the Local Plan and assumed that the same type of strategy devised for Chichester Harbour would also have to be extended to Pagham Harbour, principally with regard to development at Selsey (which has been identified in the survey as being the source of almost half of all winter visitors to the Chichester part of the SPA/Ramsar site and over half of all summer visitors).

6.28 This is reflected in several policies of the Chichester Local Plan:

- Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat:

  'Net increases in residential development within the 3.5km 'Zone of Influence' are likely to have a significant effect on the Pagham Harbour SPA either alone or in-combination with other developments and will need to be subject to the provisions of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended). In the absence of appropriate avoidance and/or mitigation measures that will enable the planning authority to ascertain that the development would not adversely affect the integrity of the SPA, planning permission will not be granted because the tests for derogations in Regulation 64 are unlikely to be met. Furthermore, such development would not have the benefit of the presumption in favour of sustainable development in the National Planning Policy Framework.

  Net increases in residential development, which incorporates appropriate avoidance/mitigation measures, which would avoid any likelihood of a significant effect on the SPA, will not require 'appropriate assessment'. Appropriate avoidance/mitigation measures that are likely to allow the planning authority to ascertain that there will be no adverse effect on the integrity of the SPA will comprise:

  a) A contribution towards the appropriate management of the Pagham Harbour Local Nature Reserve through the joint Chichester and Arun Scheme of Mitigation in accordance with the LNR Management Plan; or

  b) A developer provided package of measures associated with the proposed development designed to avoid any significant effect on the SPA; or

  c) A combination of measures in (a) and (b) above.

  Avoidance/mitigation measures will need to be phased with development and shall be maintained in perpetuity. All mitigation measures in (a), (b) and (c) above must be agreed to be appropriate by Natural England in consultation with owners and managers of the land within the SPA.

  The provisions of this policy do not exclude the possibility that some residential schemes either within or outside the Zone of Influence might require further assessment under the Habitats Regulations. For example, large schemes, schemes proposing bespoke or alternative avoidance/mitigation measures, or schemes proposing an alternative approach to the protection of the SPAs and/or the Compensatory Habitats where there is survey or other evidence that the site is used as supporting habitats by SPA species, including Brent Geese. Such schemes will be assessed on their own merits, under Regulation 63 (appropriate assessment), and subject to advice from Natural England.'

6.29 Other protective measures included within policy text include:

- Policy NE5: Biodiversity and Biodiversity Net Gain states: 'All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks including:

a) *Internationally designated sites (SPA, SAC, Ramsar)*

b) *Irreplaceable habitats, including ancient woodland and ancient or veteran trees*

c) *Nationally designated sites, such as Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Marine Conservation Zones (MCZ)*

d) *Riverine and Marine Habitats*

e) *Priority Habitats and Species*

f) *Biodiversity Opportunity Areas (BOA)*

g) *Locally designated sites, such as Sites of Nature Conservation Importance and Local Nature Reserves*

h) *Wildlife corridors and steppingstones*

Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations'.'

- Policy NE6: Chichester's Internationally and Nationally Designated Habitats states: 'Development will only be permitted where it would not lead to adverse effect upon the integrity, either alone or in-combination, directly or indirectly, on internationally, European and nationally important sites'.
- Policy I1: Infrastructure Provision: this policy provides for the timely delivery of infrastructure. This may include recreational provision to ensure no adverse effects result.

6.30 The neighbouring District of Arun has also developed the following series of mitigation and avoidance proposals relating to housing within Arun district, as expressed in their Local Plan:

- Wardening - increasing the number of wardens at the site to ensure that people do not stray into sensitive areas.
- Access management and site protection - improving or closing paths, erecting fencing or establishing other barriers, in order to prevent or reduce access to sensitive areas
- Habitat improvements - mitigating against any disturbance to birds, including their nesting, roosting or feeding habitats which could instead be enhanced or created.
- Interpretation, education and signage - improving visitor facilities and informing visitors of the requirement to protect the wildlife of the site and outlining how best to achieve this;
- Monitoring of wildlife and visitor numbers and the effect that disturbance has on wildlife, so that access management can be modified as appropriate.

6.31 Policy ENV DM2 of the Arun Local Plan goes on to describe a series of distance bands, and the mitigation or other measures which development within those zones may trigger and which broadly fit with the core catchment of the SPA/Ramsar site as identified in the Footprint Ecology visitor survey:

- Within Zone A (0-400m) as identified on the Policies Map, development will only be permitted in exceptional circumstances where the developer is able to demonstrate there will be no detrimental effect on Pagham Harbour, including non-native species and the water environment. Regard shall also be had to tests 1-4 as set out in Policy DM1 (Designated Sites of Biodiversity or Geological Importance).
- Within Zone B (0 – 5km) all new residential development will be required to:
    - Make developer contributions towards the agreed strategic approach to access management at Pagham Harbour; and
    - Create easily accessible new green spaces for recreation within or adjacent to the development site These shall be capable of accommodating the predicted increases in demand for local walking, including dog walking. Good pedestrian links shall be provided between housing areas and new and existing green space in order to discourage car use.(c) Major developments (as defined in GDPO 1995 as amended) taking place outside Zone B and close to its boundary will be considered on a case by case basis to determine any potential effects on Pagham Harbour, and the need for any avoidance or mitigation measures.

6.32 The Chichester Local Plan broadly reflects the Arun Local Plan approach by including protective policy. Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat specifically addresses that residential development within the established 3.5km zone of influence is likely to have adverse impacts to the integrity of Pagham Harbour SPA be subject to the provisions of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 and will require the utilisation of mitigation, as reflected earlier in this discussion.

6.33 The different distances used in the Chichester Local Plan(3.5km compared to 5km for Arun District) reflect the visitor survey results for the Chichester District part of Pagham Harbour.

6.34 Given the application of a dedicated policy to protect Pagham Harbour and Medmerry and ensure the delivery of improved access management of the Harbour in line with any increase in population within the core catchment it is considered that there will be no adverse effect on the integrity of the Harbour as a result of the Chichester Local Plan. The assessment already factors in development within Arun District and therefore no separate assessment 'in combination' is necessary.

Recommendation:

6.35 **The following recommended policy text changes are made to ensure full robustness of the Local Plan Policy Framework :**

- Policy E9: Caravan and Camping Sites: To ensure this policy provides a robust framework to ensure the protection of European sites, it is recommended that policy text is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough~~):

*'**~~Whether there is a requirement~~** **The degree of protection considered desirable in order** to avoid disturbance to sensitive sites of ecological value (including ensure no adverse effects on integrity of sensitive European designated wildlife sites occurs) or to protect the tranquillity and character of the countryside, Chichester Harbour Area of Outstanding Natural Beauty and the setting of the National Park, Pagham Harbour and the undeveloped coast; and'*

- Policy NE12: Development around the Coast: It is recommended that point 1 and 2 is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough)~~

'*1. There are no harmful effects on or net loss of nature conservation or areas of geological importance **~~in particular~~** within the Chichester and Pagham Harbours and Medmerry Realignment (including no adverse effects on the associated European designated sites);*

*2. **~~If~~** **T**he development provides recreational opportunities that **~~they~~** do not adversely affect the character, environment and appearance of the coast and Chichester Harbour Area of Outstanding Natural Beauty or **~~damage~~** **result in adverse effects on** the integrity to European designated wildlife sites'*

Coastal Squeeze

6.36 No new development areas identified in the Local Plan would constrain any managed retreat that may be required in the future to allow the SPA/Ramsar site to respond to sea level rise, as they are either over 400m from the SPA/Ramsar site or lie landwards of existing housing. Moreover, none would require the coastal defence policies identified in the Shoreline Management Plan to be altered. There are no other plans or projects which would operate 'in combination' with the Chichester Local Plan.

Reduced Water Quality

6.37 The area of Hunston is served by Pagham WwTW that discharges into Pagham Rife which flows into Pagham Harbour European site. The areas of East Wittering/ Bracklesham, Selsey and Birdham are served by Sidlesham WwTW which flows into Broad Rife, upstream of Pagham Harbour European site.

6.38 Chichester District Council has commissioned a Water Quality Assessment[93], which identifies that due to the distance from the discharge points at Pagham and Sidlesham WwTW to the European sites, and the processes of mixing and dilution, the contribution of nitrate loading in the Pagham Harbour is 'potentially low'. The Assessment concludes that no mitigation measures are required and as such

[93] AMEC Foster Wheeler (August 2018). Chichester District Council Water Quality Assessment. Final Report.

development within those settlements that are served by both Pagham and Sidlesham WwTW would not adversely affect the water quality of Pagham Harbour European site. Nonetheless, the Assessment identifies potential measures that could be put in place to limit nitrate emissions such as demand management and reduce water usage.

6.39 Furthermore, the Local Plan provides policy to provide protection to European sites as a result of adverse water quality as follows:

- Policy NE16: Water Management and Water Quality states: '*Development proposals will be permitted that demonstrate: a) the development has no adverse impact on the quality of water bodies and groundwater, nor will it prevent future attainment of favourable conservation status, taking into account agreed mitigation measures where necessary. b) the development contributes positively to the water environment and its ecology and does not adversely affect surface water and groundwater quality*.'
- Policy NE5: Biodiversity and Biodiversity Net Gain states: '*All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks including:*
  - Internationally designated sites (SPA, SAC, Ramsar)
  - Irreplaceable habitats, including ancient woodland and ancient or veteran trees
  - Nationally designated sites, such as Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Marine Conservation Zones (MCZ)
  - Riverine and Marine Habitats
  - Priority Habitats and Species
  - Biodiversity Opportunity Areas (BOA)
  - Locally designated sites, such as Sites of Nature Conservation Importance and Local Nature Reserves
  - Wildlife corridors and steppingstones

  Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations'
- Policy I1: Infrastructure Provision: provides for the timely delivery of infrastructure. This would include water treatment infrastructure to ensure no adverse effects result.
- Policy NE6: Chichester's Internationally and Nationally Designated Habitats states: 'Development will only be permitted where it would not lead to adverse effect upon the integrity, either alone or in-combination, directly or indirectly, on internationally, European and nationally important sites'.

6.40 With this wide ranging provision of policy framework to ensure the protection of European sites in it is considered that this impact pathway will not result in adverse effect on the integrity of these European sites.

Loss of Functionally Linked Supporting Habitat for Birds

6.41 Pagham Harbour SPA/Ramsar is partially notified for its breeding population of Common and Little tern species and over-wintering populations of Brent geese and wading bird species including ruff. However, studies[94] have identified that many feeding and roosting sites around the European Site fall outside of the statutory nature conservation site boundaries.

6.42 A single policy has been identified to provide development within the Plan and which due to the location of an allocation could contain functionally linked supporting habitat for over-wintering populations of Brent geese and wading bird species. These are:

[94] King, D. (2010) Solent Waders and Brent Goose Strategy 2010. Hampshire and Isle of Wight Wildlife Trust.

6.43 Policy E3 Addressing Horticultural Needs – the allocation in question being a horticultural development south west of Sidlesham and approximately 250m north and 350m west of the SPA and Ramsar site. In the HRA undertaken for Chichester District Council in 2014 it was reported that the Council had *'indicated in discussions over this HRA that policy recommendations to protect locations outside of the SPA/ Ramsar site of value to Brent geese and waders would be addressed within the Site Allocations DPD and Neighbourhood Plans*'.

6.44 Nonetheless, policy within the Local Plan includes policy that provides protection to European designated sites as follows:

6.45 Policy NE5: Biodiversity and Biodiversity Net Gain states: *'All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological network… Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations;'*

6.46 The Local Plan also provides Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat which states in relation to the Solent Waters and Brent Goose sites: '*The provisions of this policy do not exclude the possibility that some residential schemes either within or outside the Zone of Influence might require further assessment under the Habitats Regulations. For example, large schemes, schemes proposing bespoke or alternative avoidance/mitigation measures, or schemes that impinge on the supporting habitats identified by the Solent Waders and Brent Goose Strategy. Such schemes will be assessed on their own merits under Regulation 63 (appropriate assessment), and, subject to advice from Natural England. Where mitigation for any impact upon supporting habitats is required this should follow the guidance given in the Solent Waders and Brent Goose Strategy*'. And goes into further detail within the supporting text to say '*For both Chichester and Pagham Harbours some of the bird species for which they are designed, Brent Geese in particular, use functionally linked supporting habitats around the SPA for feeding and roosting. Developments on or adjacent to these areas can have an impact on the SPAs separate to and additional to the impact of recreational disturbance. For Chichester and Langstone Harbours SPA, the Solent Waders and Brent Goose Strategy (https://solentwbgs.wordpress.com/page-2/) identifies the areas of supporting habitat and grades them into four categories: core areas, primary support areas, secondary support areas and low use areas. Interim guidance on offsetting and mitigation requirements has been produced*.[95]'

Recommendation:

6.47 Although Policy E4 Horticultural Development has been screened out of the HRA as not causing likely significant effect as a development management policy, it sets out the detailed criteria against which a given proposal within the HDAs would be deemed acceptable. Therefore, to ensure protection for European sites with regards to development allocated within Policy E3 Addressing Horticultural Needs, additional wording is required within Policy E4**. It is recommended that Policy E4 Horticultural Development include the following additions to the policy: '*Ensure that development avoids harm to protected species and existing important habitats features and facilitates the achievement of biodiversity net gain and facilitates the creation of high levels of habitat connectivity within the site and to the wider Green Infrastructure network and identified Strategic Wildlife Corridors within the parish. This includes the provision of appropriate buffers as necessary in relation to important habitats which are being retained and/or created.**

Successfully avoid and/or mitigate potential impacts on the Pagham SPA/Ramsar, including contributing to any strategic access management issues (including on-site mitigation where required as part of the Habitats Regulations Assessment), and potential for loss of functionally linked supporting habitat.'

6.48 Provided the above recommendation is included within the Plan, it can be concluded that the Local Plan will not result in adverse effect in integrity of the European site.

[95] swbgs-mitigation-guidance-oct-2018.pdf (wordpress.com) [Accessed 28/11/2022]

Atmospheric Pollution

6.49 The relevant part of the Pagham Harbour SPA and Ramsar site is located within 200m of the B2145. Modelling was conducted for two transects one to the east and one to the west of the road. These have a nitrogen deposition rate of 16.77 kgN/ha/yr to the east on transect PGHR1 and 15.68 kgN/ha/yr to the west on transect BGHR2. The first point for each transect is shown within the Table below. Current nitrogen deposition is therefore well below the most stringent critical load (20 kgN/ha/yr) for saltmarsh and intertidal mudflat, the relevant SPA and Ramsar site habitats in this location according to www.magic.gov.uk and continues to be below critical load in-combination either without the Chichester Local Plan (Future Year – DN) or with the Chichester Local Plan (Future Year – DS) as shown in Table 8, below. Going beyond nitrogen and examining NOx and ammonia, at no point on the modelled transects are 2040 concentrations forecast to exceed the respective critical levels of 30 μgm^{-3} and 3 μgm^{-3}.

Table 9. Modelled nitrogen deposition results for road links relevant to Pagham Harbour (in-combination)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
PGHR1	B2145 (East)	20	16.77	14.59	18.05	3.46
PGHR2	B2145 (West)	20	15.68	13.57	16.50	2.94

6.50 Moreover, this background deposition rate is likely to decrease rather than increase as improvements in background air quality are achieved in line with central government initiatives and improvements in emission technology (such as the further roll out of the Euro6/VI emissions standard which only became mandatory in 2014/2015). This is supported by oxidised nitrogen deposition and NOx concentration trend data available on APIS for the 1km (for NOx) and 5km (for nitrogen deposition) (1km for 2019) grid squares within which the relevant parts of the SPA/SAC are situated. This indicates that background NOx concentrations reduced between 2014 and 2019 (the most recent year for which data are available) from 12.4 μgm^{-3} to 11.2 μgm^{-3}. Similarly, background oxidised nitrogen deposition rates (those attributable to combustion such as vehicle exhausts) reduced by 1.6 kgN/ha/yr between 2005 and 2019.

6.51 Given this trend, it is unlikely that increased traffic flows as a result of development in the Local Plan area, even in combination with other projects and plans would result in a sufficiently large increase to push it over the critical load, as has been shown in the above table. Furthermore, it is important to note that the experimental studies that underlie conclusions regarding the sensitivity of saltmarsh to nitrogen deposition, and the selection of 20 kgN/ha/yr as the minimum critical load have '… *neither used very realistic N* [nitrogen] *doses nor input methods i.e. they have relied on a single large application more representative of agricultural discharge*'[96], which is far in excess of anything that would be deposited from atmosphere. For coastal saltmarshes such as those for which the species designated within the Pagham Harbour SPA rely on, nitrogen inputs from air are not as important as nitrogen effects from other sources because the effect of any deposition of nitrogen from atmosphere is likely to be dominated by much greater flushes of more readily utilized nitrogen from marine, fluvial or agricultural sources. This is reflected on APIS itself, which states regarding saltmarsh that '*Overall, N deposition* [from atmosphere] *is likely to be of low importance for these systems as the inputs are probably significantly below the large nutrient loadings from river and tidal inputs*'[97]. Moreover, the nature of intertidal saltmarsh in this area means that there is flushing by tidal incursion twice per day. This is likely to further reduce the role of nitrogen from atmosphere in controlling botanical composition.

6.52 Since the NOx concentrations and nitrogen critical load for the relevant roadside habitats in 2040 are not forecast to be exceeded, no adverse effect on the integrity of the coastal European sites will arise, either alone or in combination with other plans and projects.

6.53 Notwithstanding this conclusion, the Local Plan does include several measures that can be expected to result in further improvement in roadside air quality, beyond that achieved by improvements in EU-

[96] UK Air Pollution Information System website [accessed 21/04/15]: http://www.apis.ac.uk/node/968
[97] APIS website [accessed 06/06/16]: http://www.apis.ac.uk/node/968

mandated emissions technology. Air quality mitigation measures can be broadly classified as four types:

- Behavioural measures and modal shift - reducing the amount of traffic overall;
- Traffic management - modifying traffic behaviour to control where emissions are generated;
- Emissions reduction at source - reducing the emissions level per vehicle; and
- Roadside barriers - reducing the impact on the public of emissions.

6.54 The measures identified in Chichester Local Plan document cover all of these categories, except for the fourth (roadside barriers) which is not within the remit of local planning policy. The Chichester Local Plan document contains positive measures that should aim to mitigate or avoid the likelihood of significant adverse effects from reduced air quality:

- Policy NE21: Air Quality: This policy aims to improve air quality within the district of Chichester. This includes minimising traffic generation, Air Quality Management Areas and air quality assessments.
- Policy T2: Transport and Development: This policy ensures that the development is safe, sustainable, connected and accessible by active and public travel networks and the use of air quality assessments where significant adverse effects are likely.
- Policy T3: Active Travel – Walking and Cycling Provision: Promotes sustainable transport and prioritises walking an cycling to remove vehicles from the roads.
- Policy NE1: Stand-alone Renewable Energy: The provision of renewable energy has the ability to reduce atmospheric pollution contributions.

6.55 These policies form a protective framework to help to reduce atmosphere pollution contributions and, coupled with the results of the air quality modelling, it is thus considered that the Plan will not result in an adverse effect in integrity on this European site.

7. Ebernoe Common SAC

Introduction

7.1 Ebernoe Common is an internationally important example of ancient woodland. It contains a wide range of structural and vegetation community types which have been influenced in their development by differences in the underlying soils and past management. The native trees, particularly those with old growth characteristics, support rich lichen and fungal communities and a diverse woodland breeding bird assemblage. Nationally important maternity roosts for barbastelle and Bechstein's bat occur within the woodland.

7.2 At its closest point the SAC lies adjacent to the Local Plan area in the vicinity of Kirdford, Plaistow and Ifold.

Features of European Interest[98]

7.3 Ebernoe Common SAC qualifies as an SAC for both habitats and species. Firstly, the site contains the following Habitats Directive Annex I habitat:

- Beech forests on acid soils.

7.4 Secondly, the site contains the following Habitats Directive Annex II species:

- Barbastelle *Barbastella barbastellus*; and
- Bechstein's bat *Myotis bechsteinii*.

Historic Trends and Current Conditions

7.5 Ebernoe Common SAC is owned and managed by Sussex Wildlife Trust (SWT). There is evidence that the Common has contained a mixture of open pasture and high forest for centuries. Ebernoe Nature Reserve is an Open Access site and is fairly well used (SWT estimate up to 3,000 visitors per annum)[99].

7.6 In the most recent Natural England condition assessment process, 93% of Ebernoe Common SSSI was considered to be in favourable condition, with the remainder recovering from unfavourable status.

Conservation Objectives[100]

7.7 '*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;*

- *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'*.

[98] http://publications.naturalengland.org.uk/file/6245694033625088 [accessed 15/10/2018]
[99] Monk-Terry, M. & Lyons, G. Sussex Wildlife Trust Ebernoe Nature Reserve Management Plan 2010-2015.
[100] Natural England. European Site Conservation Objectives for Ebernoe Common Special Area of Conservation (2014). Available online: http://publications.naturalengland.org.uk/publication/6255629165395968 [Accessed: 15/10/2018].

Key Environmental Conditions

7.8 The key environmental conditions that support the features of European interest have been defined as:

- Appropriate management;
- Minimal atmospheric pollution – may increase the susceptibility of beech trees to disease and alter epiphytic communities;
- Absence of disturbance;
- In a wider context, bats require good connectivity of landscape features to allow foraging and commuting;
- Both bat species have close association with woodland. Areas of undesignated woodland adjacent to SAC may be of most importance to population; and
- Barbastelles require a constant humidity around their roosts; any manipulation of the shrub layer must be carefully considered.

Potential Effects Linking to the Local Plan

7.9 The screening assessment undertaken in the table in **Appendix A** identify that following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development
- Policy A15: Loxwood

Site Allocations

7.10 The Local Plan makes no strategic site allocations within proximity of this SAC site. However, the Local Plan does allocate a quantum of dwellings to Parishes within proximity to the SAC. These dwellings will be allocated sites within subsequent Neighbourhood Plans:

- 220 dwellings to Loxwood (Policy A15);
- 75 dwellings to Wisborough Green (Policy H3);
- 50 dwellings to Kirdford (Policy H3); and,
- 25 dwellings to Plaistow and Ifold (Policy H3)

7.11 Potential linking impact pathways are as follows:

- Disturbance of bat flight lines through development within the north of the Local Plan area; and
- Potential air quality impacts associated with traffic.

Appropriate Assessment

Disturbance of Bat Flight Lines

7.12 Ebernoe Common is an exceptional site for both Bechstein's and Barbastelle bats. As discussed in Chapter 3, key conservation areas have been determined as follows:

- A 'key conservation area' – for any development proposed within 6.5km of the SAC, all impacts will be considered; and
- A 'wider conservation area' – for any development proposed 6.5-12km from the SAC, significant impacts or severance of flightlines will be considered. This area encompasses the full extent from the SAC in which bats may forage.

7.13 The Local Plan does not allocate any specific sites for new residential development north of the South Downs National Park Authority boundary within either the key conservation area or wider conservation area. However, it does allocate a quantum of growth to the Loxwood, Wisborough Green, Kirdford and Plaistow and Ifold parishes (220 dwellings to Loxwood, 75 to Wisborough Green, 50 for Kirdford and 25 to Plaistow and Ifold). Actual sites will be identified in due course through the respective neighbourhood plans or a subsequent Site Allocation DPD. Clearly, the entirety of all three parishes lies within the 12km zone and much lies within the 6.5km zone. Therefore, they could impact upon the supporting habitat of bats associated with Ebernoe Common SAC. The same applies to any windfall development that could feasibly occur within the northern part of the plan area. However, before adoption, all Neighbourhood Plans that come forward will be subject to their own HRA which will ensure that impacts on functionally linked habitat are minimised and that guidance is included ensuring surveys for significant areas of functionally-linked habitat, and their preservation where identified. This could be a policy in the Neighbourhood Plan, if the Neighbourhood Plan is likely to be adopted before the Local Plan, or could be a reference to a policy within the adopted Local Plan.

7.14 Policy NE8: Trees, Hedgerows and Woodlands of the Chichester Local Plan outlines that hedgerows are identified as a priority habitat requiring conservation action under the UK Biodiversity Action Plan. Therefore, all development must be undertaken in accordance with the British Standard 5837 and all tree works must be carried out in accordance with British Standard 3998. This is set out in the following policy:

- '*Development proposals will be granted where it can be demonstrated that all of the following criteria have been met;*
  - *Proposals conserve and, where appropriate, enhance existing valued and protected trees, hedgerows and woodlands;*
  - *Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and trees; veteran trees; protected trees, groups of trees and woodland and hedgerows) should be refused unless there are wholly exceptional reasons and a suitable compensation strategy in accordance with relevant legislation, policy and guidelines;*
  - *Loss or damage of woodland and hedgerows that are priority habitats and non-protected but valued trees, woodland, community orchards, and all hedgerows should be avoided, and if demonstrated as being unavoidable, appropriate mitigation measures are provided;*
  - *Proposals should maximise opportunities for planting of new trees, woodlands and hedgerows to contribute to biodiversity net gain, green infrastructure and nature recovery strategies and networks. In addition, proposals will be required to plant two trees for each one lost through development; provide new planting to thicken existing hedgerows, and fill in all gaps in all hedgerows;*
  - *Proposals should have a minimum buffer zone of 15 metres from the boundary of ancient woodland or veteran trees to avoid root damage (known as the root protection area);*
  - *All major development proposals will be required to provide street tree planting;*
  - *Development proposals must demonstrate that appropriate protection measures are in place prior to any work on site and throughout the development process as part of a tree protection plan;*

- *Suitable opportunities for the restoration, enhancement or planting of trees, woodland, and hedgerows are identified and incorporated into a comprehensive landscaping plan; and*
- *Where appropriate, the Council will seek minimum five-year maintenance and management plans to accompany the soft landscaping proposals.*
- *Trees proposed for landscaping and replacement planting should be selected from a diverse range and variety of native species to help provide long-term resilience to pests, diseases and climate change.*

The council will consider development proposals against the requirements and standards contained in legislation as well as current local and national guidance and practice'

7.15 Since hedgerows and woodlands are key supporting habitats used by bat species to facilitate movement between foraging habitats, this policy provides for adequate mitigation for the protection of bat flightlines within the Local Plan area. However, barbastelle bats will also forage in and around other habitats (particularly wetlands and flood meadows) if their prey abundance is sufficiently great.

7.16 Protection of these habitats would be facilitated by Policy NE5: Biodiversity and Biodiversity Net Gain states: '*All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks including:*

- *Internationally designated sites (SPA, SAC, Ramsar)*
- *Irreplaceable habitats, including ancient woodland and ancient or veteran trees*
- *Nationally designated sites, such as Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Marine Conservation Zones (MCZ)*
- *Riverine and Marine Habitats*
- *Priority Habitats and Species*
- *Biodiversity Opportunity Areas (BOA)*
- *Locally designated sites, such as Sites of Nature Conservation Importance and Local Nature Reserves*
- *Wildlife corridors and steppingstones*

Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations'.'

7.17 Finally, Policy NE6: Chichester's Internationally and Nationally Designated Habitats states with regards to The Mens SAC, Ebernoe Common SAC and Singleton and Cocking Railway Tunnels SAC: "*Development proposals on greenfield sites and sites that support, or are in close proximity to, suitable commuting and foraging habitats (including mature vegetative linear features such as woodlands, hedgerows, riverine and wetland habitats) within the following ranges (as shown on the Policies Map) should have due regard to the possibility that barbastelle and Bechstein's bats will be utilising the site. Such proposals will be required to incorporate necessary surveys and ensure that key features (foraging habitat and commuting routes) are retained, in addition to a suitable buffer*[101] *to safeguard against disturbance:*

- *Key Conservation Area – 6.5km: all impacts to bats must be considered given that habitats within this zone are considered critical for sustaining the populations of bats within the SACs; and*
- *Wider Conservation Area – 12km: significant impacts on severance to flight lines to be considered*.

Regard should be had to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol (2018), or any subsequent equivalent document".

7.18 Given the rarity of the barbastelle bats, effects of development on their habitat (whether commuting or foraging habitat) is a material consideration in the planning process whether or not the bats in question

[101] The scale of the buffer will need to be determined on a case-by-case basis, informed by bat activity survey work and would take account of the species involved and their sensitivity to disturbance/artificial lighting and the natural screening provided by existing surrounding vegetation.

are associated with a European site. This policy therefore enables protection of barbastelle bat habitat and (if it cannot be preserved) would also enable the Council to require that provision was made for replacing any loss of foraging habitat that may be anticipated, prior to its loss.

7.19 Along with implementation of the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol' (2017), the above policies provide a protective framework for the SAC and the Local Plan will not result in an adverse effect in integrity on this SAC.

Atmospheric Pollution

7.20 As identified in Table 3 the SAC lies within 200m of the A283 for a short distance. According to APIS the average background nitrogen deposition rate for this site (not specifically within 200m of the roadside) is 26.9 kg/N/ha/yr which is above the upper critical load of 20 kgN/ha/yr and well above the lower critical load of 10 kgN/ha/yr.

7.21 The Local Plan does not allocate any dwellings within the north of the Plan area but does make provision for 370 dwellings across Loxwood, Wisborough Green, Kirdford and Plaistow and Ifold parishes. Within the north of the plan area all settlements outside of the South Downs National Park Authority are small villages that have many roads connecting them to the wider landscape other than the A283.

7.22 Modelling was conducted for a single transects on the A283. The first point for the transect is shown within the Table below. Current nitrogen deposition is therefore well above the most stringent critical load (10 kgN/ha/yr) for beech forest, the relevant SAC site habitats in this location according to www.magic.gov.uk.

Table 10. Modelled nitrogen deposition results for road links relevant to Solent European sites (in-combination)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
EBCM	A283	10	31.31	26.34	27.91	1.57

Table 11. Modelled nitrogen deposition results for road links relevant to Solent European sites (in isolation)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
EBCM	A283	10	31.31	28.08	27.91	-0.16

7.23 The above tables show, that in both cases either alone or in combination the SAC will still be well over the critical load for beech woodland. However, Table 11 the 'in isolation' table i.e. the Chichester Local Plan contribution to air pollution shows a 0.16 kgN/ha/yr reduction in deposition rates due to the implementation of the Plan verses not implementing the Plan. This reduction in deposition rates is likely due to improvements in active travel and public transport promoted within the Local Plan reducing the number of vehicular passes along the A283. The same trend is observed for NOx concentrations and ammonia concentrations i.e. a decrease (improvement) due to the Local Plan.

7.24 Moreover, the Local Plan provides the following policies that would reduce atmospheric pollution contributions stemming from development:

- Policy NE21: Air Quality: This policy aims to improve air quality within the district of Chichester. This includes minimising traffic generation, Air Quality Management Areas and air quality assessments.
- Policy T2: Transport and Development: This policy ensures that the development is safe, sustainable, connected and accessible by active and public travel networks and the use of air quality assessments where significant adverse effects are likely.
- Policy T3: Active Travel – Walking and Cycling Provision: Promotes sustainable transport and prioritises walking an cycling to remove vehicles from the roads.

- Policy NE1: Stand-alone Renewable Energy: The provision of renewable energy has the ability to reduce atmospheric pollution contributions.

7.25 APIS also shows that background NOx has reduced from 9.8 ug/m^3 in 2014 to 8.9 ug/m^3 in 2019 and nitrogen deposition rates at the SAC are also improving from 14.7 kgN/ha/yr in 2005 (5km grid square) to 11.4 kgN/ha/yr in 2019 (1km grid square). Additionally, the Site Improvement Plan for the SAC highlights that although the critical load is exceeded the '*sensitive features are currently considered to be in favourable condition on this site*[102]', the Supplementary Advice for Conservation Objectives[103] for the site provides no further information on potential impact due to air quality.

7.26 The air quality modelling shows a reduction in nitrogen deposition rates and ammonia and NOx concentrations due to the Local Plan. Given this, and the fact that APIS background nitrogen deposition rates at the SAC are shown to be improving and the sensitive features still considered favourable despite elevated nitrogen, a conclusion of no adverse effect in integrity on this European site can be drawn.

[102] http://publications.naturalengland.org.uk/file/5365367427825664 [Accessed 1/12/2022]
[103] http://publications.naturalengland.org.uk/file/4891772140650496 [Accessed 1/12/2022]

8. The Mens SAC

Introduction

8.1 The Mens remains one of the most extensive examples of Wealden Woodland in West Sussex. It is important for its size, structural diversity and the extremely rich fungal and lichen floras which occur here. The wood supports a diverse community of breeding birds and is the locality of a nationally endangered species of fly.

8.2 At its closest point the SAC lies adjacent to part of the Local Plan area to which the Chichester Local Plan applies.

Features of European Interest[104]

8.3 The Mens SAC qualifies as a SAC for both habitats and species. Firstly, the site contains the following Habitats Directive Annex I habitat:

- Beech forests on acid soils.

8.4 Secondly, the site contains the following Habitats Directive Annex II species:

- Barbastelle *Barbastella barbastellus.*

Conservation Objectives[105]

8.5 *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;*

8.6 *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.'*

Historic Trends and Current Pressures

8.7 The Mens SAC is owned and managed by Sussex Wildlife Trust. In the most recent Natural England condition assessment process, 97% of The Mens SSSI was considered to be in favourable condition.

Key Environmental Conditions

8.8 The key environmental conditions that support the features of European interest have been defined as:

- Appropriate woodland management;
- Low recreational pressure (because management is minimum intervention and Bridleway degradation by horse riding is a recurring threat);

[104] http://publications.naturalengland.org.uk/file/5157859599843328 [accessed 15/10/2018]
[105] Natural England. uropean Site Conservation Objectives for The Mens Special Area of Conservation (2014) Available online: http://publications.naturalengland.org.uk/publication/5642356338458624 [Accessed: 15/10/2016].

- Minimal air pollution – may increase the susceptibility of beech trees to disease and alter epiphytic communities; and
- Barbastelles require a constant humidity around their roosts; any manipulation of the shrub layer must be carefully considered.

Potential Effects Linking to the Local Plan

8.9 The screening assessment undertaken in the table in Appendix A identify that following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Parish Housing Requirements 2021 – 2039
- Policy H13: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
- Policy H14: Intensification of Existing Authorised Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development
- Policy A15: Loxwood

Site Allocations

8.10 The Local Plan makes no strategic site allocations within proximity of this SAC site. However, the Local Plan does allocate a quantum of dwellings to Parishes within proximity to the SAC. These dwellings will be allocated sites within subsequent Neighbourhood Plans:

- 220 dwellings to Loxwood (Policy A15);
- 75 dwellings to Wisborough Green (Policy H3);
- 50 dwellings to Kirdford (Policy H3); and,
- 25 dwellings to Plaistow and Ifold (Policy H3)

8.11 Potential linking impact pathways are as follows:

- Disturbance of bat flight lines through development within the Local Plan area; and
- Potential air quality impact on the woodland.

Appropriate Assessment

Disturbance of Bat Flight Lines

8.12 The Mens SAC is important for its barbastelle populations and radio-tracking studies have been undertaken to identify core foraging areas. As discussed in Chapter 3 (paragraph 3.39 onwards), key conservation areas have been determined as follows:

- A 'key conservation area' – for any development proposed within 6.5km of the SAC, all impacts will be considered; and
- A 'wider conservation area' – for any development proposed 6.5-12km from the SAC, significant impacts or severance of flightlines will be considered. This area encompasses the full extent from the SAC in which bats may forage.

8.13 The Local Plan does not allocate any new residential development north of the South Downs National

Park Authority boundary within either the key conservation area of wider conservation area. However, it does allocate a quantum of growth to both Loxwood, Wisborough Green, Kirdford and Plaistow and Ifold parishes (220 dwellings to Loxwood, 75 to Wisborough Green, 50 to Kirdford and 25 to Plaistow and Ifold). Actual sites will be identified in due course through the respective neighbourhood plans or a subsequent Site Allocation DPD. Clearly, the entirety of all parishes lies within the 12km zone and much of it lies within the 6.5km zone. Therefore, they could impact upon the supporting habitat of bats associated with The Mens SAC. The same applies to any windfall development that could feasibly occur within the north of the plan area. However, before adoption, all Neighbourhood Plans that come forward will be subject to their own HRA which will ensure that impacts on functionally linked habitat are minimised and that a policy is drafted ensuring surveys for significant areas of functionally-linked habitat, and their preservation where identified.

8.14 Policy NE8: Trees, Hedgerows and Woodlands of the Chichester Local Plan outlines that hedgerows are identified as a priority habitat requiring conservation action under the UK Biodiversity Action Plan. Therefore, all development must be undertaken in accordance with the British Standard 5837 and all tree works must be carried out in accordance with British Standard 3998. This is set out in the following policy:

- '*Development proposals will be granted where it can be demonstrated that all of the following criteria have been met;*
    - *Proposals conserve and, where appropriate, enhance existing valued and protected trees, hedgerows and woodlands;*
    - *Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and trees; veteran trees; protected trees, groups of trees and woodland and hedgerows) should be refused unless there are wholly exceptional reasons and a suitable compensation strategy in accordance with relevant legislation, policy and guidelines;*
    - *Loss or damage of woodland and hedgerows that are priority habitats and non-protected but valued trees, woodland, community orchards, and all hedgerows should be avoided, and if demonstrated as being unavoidable, appropriate mitigation measures are provided;*
    - *Proposals should maximise opportunities for planting of new trees, woodlands and hedgerows to contribute to biodiversity net gain, green infrastructure and nature recovery strategies and networks. In addition, proposals will be required to plant two trees for each one lost through development; provide new planting to thicken existing hedgerows, and fill in all gaps in all hedgerows;*
    - *Proposals should have a minimum buffer zone of 15 metres from the boundary of ancient woodland or veteran trees to avoid root damage (known as the root protection area);*
    - *All major development proposals will be required to provide street tree planting;*
    - *Development proposals must demonstrate that appropriate protection measures are in place prior to any work on site and throughout the development process as part of a tree protection plan;*
    - *Suitable opportunities for the restoration, enhancement or planting of trees, woodland, and hedgerows are identified and incorporated into a comprehensive landscaping plan; and*
    - *Where appropriate, the Council will seek minimum five-year maintenance and management plans to accompany the soft landscaping proposals.*
    - *Trees proposed for landscaping and replacement planting should be selected from a diverse range and variety of native species to help provide long-term resilience to pests, diseases and climate change.*

  The council will consider development proposals against the requirements and standards contained in legislation as well as current local and national guidance and practice'

8.15 Since hedgerows and woodlands are key supporting habitats used by bat species to facilitate movement between foraging habitats, this policy provides for adequate mitigation for the protection of bat flightlines within the Local Plan area. However, barbastelle bats will also forage in and around other habitats (particularly wetlands and flood meadows) if their prey abundance is sufficiently great.

8.16 Protection of these habitats would be facilitated by Policy NE5: Biodiversity and Biodiversity Net Gain states: '*All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks including:*

- *Internationally designated sites (SPA, SAC, Ramsar)*
- *Irreplaceable habitats, including ancient woodland and ancient or veteran trees*
- *Nationally designated sites, such as Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Marine Conservation Zones (MCZ)*
- *Riverine and Marine Habitats*
- *Priority Habitats and Species*
- *Biodiversity Opportunity Areas (BOA)*
- *Locally designated sites, such as Sites of Nature Conservation Importance and Local Nature Reserves*
- *Wildlife corridors and steppingstones*

Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations'.'

8.17 Finally, Policy NE6: Chichester's Internationally and Nationally Designated Habitats states with regards to The Mens SAC, Ebernoe Common SAC and Singleton and Cocking Railway Tunnels SAC: "*Development proposals on greenfield sites and sites that support, or are in close proximity to, suitable commuting and foraging habitats (including mature vegetative linear features such as woodlands, hedgerows, riverine and wetland habitats) within the following ranges (as shown on the Policies Map) should have due regard to the possibility that barbastelle and Bechstein's bats will be utilising the site. Such proposals will be required to incorporate necessary surveys and ensure that key features (foraging habitat and commuting routes) are retained, in addition to a suitable buffer*[106] *to safeguard against disturbance:*

- *Key Conservation Area – 6.5km: all impacts to bats must be considered given that habitats within this zone are considered critical for sustaining the populations of bats within the SACs; and*
- *Wider Conservation Area – 12km: significant impacts on severance to flight lines to be considered.*

Regard should be had to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol (2018), or any subsequent equivalent document".

8.18 Given the rarity of the barbastelle bats, effects of development on their habitat (whether commuting or foraging habitat) are a material consideration in the planning process whether or not the bats in question are associated with a European site. This policy therefore enables protection of barbastelle bat habitat and (if it cannot be preserved) would also enable the Council to require that provision was made for replacing any loss of foraging habitat that may be anticipated, prior to its loss.

8.19 Along with implementation of the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol' (2017), the above policies provide a protective framework for the SAC and the Local Plan will not result in an adverse effect in integrity on this SAC.

Atmospheric Pollution

8.20 As identified in Table 3 the SAC lies within 200m of the A272 for a short distance. According to APIS the average deposition rate for the site is 26.3 kg/N/ha/yr which is above the upper critical load of 20 kgN/ha/yr and well above the lower critical load of 10 kgN/ha/yr.

8.21 The Local Plan does not allocate any dwellings within the north of the plan area but does make provision for 370 dwellings across Loxwood, Wisborough Green, Kirdford and Plaistow and Ifold

[106] The scale of the buffer will need to be determined on a case-by-case basis, informed by bat activity survey work and would take account of the species involved and their sensitivity to disturbance/artificial lighting and the natural screening provided by existing surrounding vegetation.

parishes. Within the north of the Plan area all settlements outside of the South Downs National Park Authority are small villages that have many roads connecting them to the wider landscape other than the A272.

8.22 Modelling was conducted for two transects on the A272, one east of the road (MENS2) and one west of the road (MENS1). The first point (closest to the road) of each transect is shown within the table below. The current nitrogen deposition rate at the closest point 28.0 kgN/ha/yr and is therefore well above the most stringent critical load (10kgN/ha/yr for beech forest, the relevant SAC site habitats for this location according to www.magic.gov.uk.

8.23 The designated habitat for this SAC is beech woodland. According to APIS, the minimum Critical Load of nitrogen for beech woodland is 10 kg/N/ha/yr. APIS also identifies that the existing nitrogen deposition rate at the transect location is approximately 26.4 kg/N/ha/yr. Therefore, nitrogen deposition rates are already in exceedance of the critical load. The Critical Level for ammonia for beech woodlands is 3 µg NH_3/m^3. However, the site is also partially designated for its rich lichen and bryophyte populations which have a Critical Level of 1 µg NH_3/m^3. As such, it is this lower Level for ammonia that will be used in this assessment. APIS also identifies that the existing ammonia concentrations within the 1km grid square in which the SAC is situated are 1.55 µg NH_3/m^3 and thus already in exceedance for the SACs lichen and bryophyte populations.

8.24 With regards to NOx the critical level is set at 30 µg/m^3. Baseline data was utilised from the year 2019 which recorded NOx concentrations of 13 ug/m^3 0m from the roadside. As such the NOx Critical Level is not exceeded. Due to improvements in vehicle emissions technology (as reflected in the Defra Emission Factor Toolkit) NO_X concentrations are forecast to continue to fall to 2040 notwithstanding the expected increase in traffic due to development across Chichester District, the South Downs National Park Authority, Horsham and surrounding authorities. As both baseline and all future concentrations are forecast to be below the Critical Level of 30 µg/m^3 it can be concluded that NO_X itself will not have an adverse impact upon the SAC and will only be considered further within the assessment as a source of nitrogen deposition.

Table 12. Modelled nitrogen deposition results for road links relevant to The Mens European site (in-combination)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
MENS1	A272	10	27.95	23.72	25.61	1.90
MENS2	A272	10	27.89	23.67	25.49	1.82

Table 13. Modelled nitrogen deposition results for road links relevant to The Mens European site (in isolation)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
MENS1	A272	10	27.95	25.46	25.61	0.16
MENS2	A272	10	27.89	25.34	25.49	0.15

Modelling results

8.25 An assessment of air quality was undertaken for both alone impacts i.e. the Chichester Local Plan and in-combination e.g. Chichester Local Plan in combination with all other growth from neighbouring authorities. In this section discussion will focus on the contribution of the Chichester Local Plan alone.

Nutrient Nitrogen

8.26 As previously detailed the lowest Critical Load for nutrient nitrogen deposition of the designated habitats within the SAC is 10 kgN/ha/yr for Atlantic acidophilous beech forests with *Ilex* and a *Taxus* scrub layer and the broadleaved deciduous woodland upon which the Barbastelle bat rely.

Exceedance of this level can result in changes in ground vegetation and mycorrhiza, nutrient imbalance, changes to soil fauna, and changes to soil processes.

8.27 Data shows the minimum total annual mean nitrogen deposition to the SAC in the vicinity of the road during the Base year of 26.51 kgN/ha/yr at 200m from the road, rising to 27.95 kgN/ha/yr adjacent to the road. Therefore, the SAC is already in exceedance of the Critical Load for nitrogen deposition on beech woodland in the Base year. However, Paragraph 5.26 of Natural England guidance[107] states that '*An exceedance alone is insufficient to determine the acceptability (or otherwise) of a project'*. Where an exceedance of the Critical Load is expected, it is also necessary to consider whether the forecast dose will be imperceptible. As per paragraph 4.25 of same guidance '*…1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect'*.

8.28 As the deposition rate is already in exceedance of the Critical Load, this assessment therefore first looks at the contribution of the Chichester Local Plan in terms of a significant increase above the Critical Load. For The Mens SAC, 1% of the Critical Load is 0.1 kgN/ha/yr.

8.29 In order to assess the contribution of the Chichester Local Plan alone it is necessary to separate it from the rest of development in the South Downs National Park Authority, Horsham District Council and other neighbouring authorities. The contribution of the Local Plan alone is shown by the difference between Do Minimum 2040 and the Do Something 2040. In line with IAQM guidance, data for the immediate roadside is not used in the assessment due to reduced model accuracy that close to the road, so the data for 10m from the roadside are reported below as a worst-case.

8.30 It can be seen that, at 10m from the roadside, the Do Minimum deposition rate is 24.90 kgN/ha/yr while the Do Something deposition rate is 25.03 kgN/ha/yr. The difference between the Do Minimum 2040 and Do Something 2040 scenario is 0.13 kgN/ha/yr, which is very slightly greater than 1% of the Critical Load (10 kgN/ha/yr) for The Mens SAC. The contribution of the Local Plan alone falls below 1% of the Critical Load by c. 20m from the road. **As such the contribution to nitrogen deposition at the SAC from the Chichester Local Plan is small but needs further investigation, which is continued below.**

Ammonia

8.31 Investigating the sources of nitrogen pollution from traffic further, it is clear that ammonia plays a large part in nitrogen deposition. For The Mens SAC, 1% of the most stringent Critical Level is 0.01 µg/m^3 Appendix B shows that in the Base 2019 scenario, ammonia concentrations at 10m from the road remain consistent at c. 1.6 µg/m^3, thus indicating that, unlike NOx, there is no improvement forecast in ammonia concentrations. The contribution of Chichester Local Plan is 0.01 µg/m^3 or 1% of the critical level. Therefore, the contribution of Chichester Local Plan to the 'in combination' increase in ammonia concentrations does not exceed the threshold of imperceptibility.

8.32 It should be noted that even remote (e.g. 200m) from the road, the ammonia concentrations are 1.5 µg/m^3, so the 1 µg/m^3 threshold would be breached even without any traffic growth purely due to existing sources. It should also be noted that ammonia concentrations fluctuate greatly due to meteorological factors. Scrutiny of ammonia data from the UKEAP national ammonia monitoring network for a range of sites covering 2010-2019 shows that the normal variation in ammonia concentrations throughout a year can be as high as 3-4 µg/m^3, and even at rural sites like this one concentrations generally fluctuate by more than 1 µg/m^3 (100% of the critical level) throughout the year. Therefore, care should be taken not to read too much into very small forecast changes in average ammonia concentration, such as is predicted for Chichester Local Plan.

Ecological interpretation

8.33 Effects on The Mens SAC due to increased ammonia and nitrogen from Chichester Local Plan-derived traffic growth cannot be dismissed based on purely numerical criteria as the worst-case deposition/concentration due to the Local Plan exceeds 1% of the critical level/load. However, Natural England guidance makes it clear that exceedance of these thresholds does not automatically mean an adverse effect on integrity will arise. Paragraph 5.28 of that guidance states '*In practice, where a*

[107] http://publications.naturalengland.org.uk/publication/4720542048845824

site is already exceeding a relevant benchmark, the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner'.

8.34 Firstly, it is necessary to consider the conservation objectives for the SAC. Within that context, it should be noted that the SIP for the SAC states that 'Nitrogen deposition exceeds the site-relevant critical load for ecosystem protection and hence there is a risk of harmful effects, but the sensitive features are currently considered to be in favourable condition on the site'. Therefore, the current elevated nitrogen deposition rates and ammonia concentrations at the SAC do not appear to be having a negative effect on the key features of the site. That said, one of the targets within the Conservation Objectives Supplementary Advice[108] is to "*Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)."*

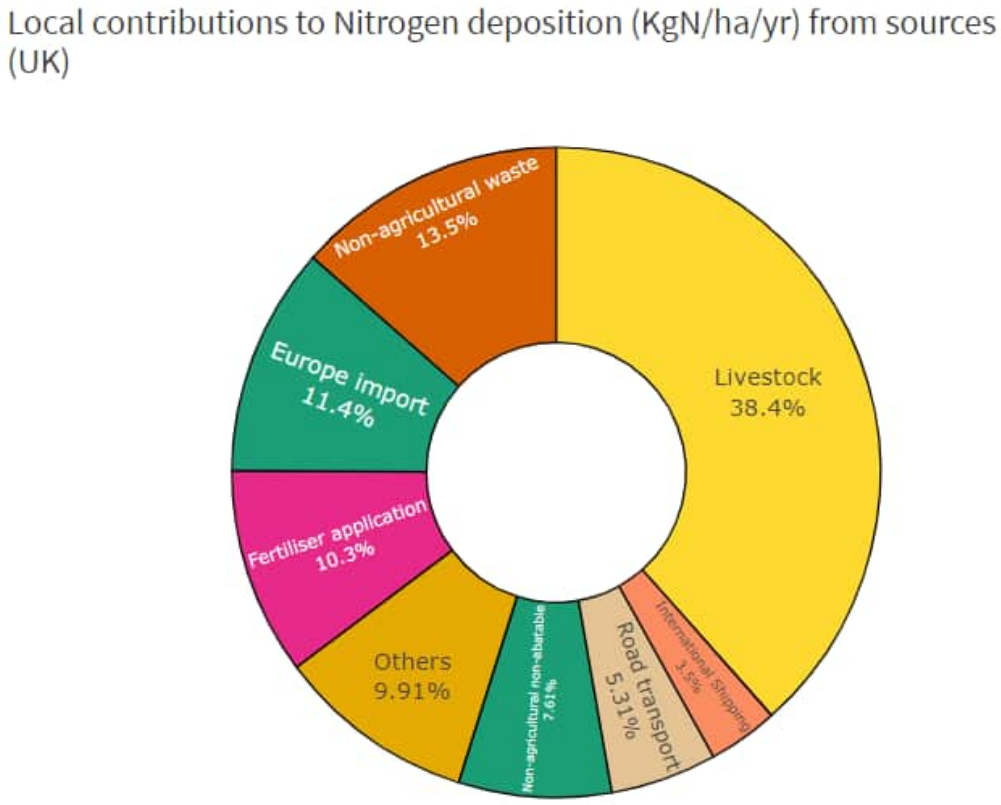
8.35 Key factors to consider in interpreting the air quality modelling results are how much of the SAC would be affected by the forecast impacts, how important is traffic as an overall source of nitrogen and ammonia at the SAC and what is the current and likely trend for these pollutants from various sources. All of these factors will influence which sources of nitrogen are most important to control and reduce in order to ensure the SAC achieves the above-mentioned conservation objective target of restoring air quality to below critical loads/levels.

8.36 Since the contribution of Chichester Local Plan to elevated nitrogen and ammonia in the SAC falls to an imperceptible level by 20m from the roadside, and only small parts of the SAC lie adjacent to the A272, only 1.3% of the SAC is affected to a greater than imperceptible degree by the Local Plan. Therefore 98.7% of the SAC will be affected to an imperceptible degree by the Chichester Local Plan and the 1.3% that will be affected would only be subject to a small (c. 1.3% of the critical level/load) increase in pollution. Moreover, for nitrogen deposition this would not constitute a ***net*** increase but rather an increase compared to a hypothetical scenario of no traffic growth. Even with the Chichester Local Plan and all other forecast traffic growth there would still be a large ***net reduction*** (improvement) in nitrogen deposition of more than 2 kgN/ha/yr.

8.37 In addition, unlike some other SACs the Air Pollution Information System shows that road traffic is a minor source of nitrogen at The Mens SAC (5%). In contrast, nearly 50% (48.7%) of atmospheric nitrogen at the SAC derives from agriculture (fertiliser and livestock combined) and over 60% of total nitrogen at the SAC comes from just two sources: agriculture and 'non-agricultural waste' (e.g. composting, landfill and energy from waste). Unlike road traffic (which has a very localised impact zone) agriculture and non-agricultural waste will affect nitrogen deposition across the entire SAC.

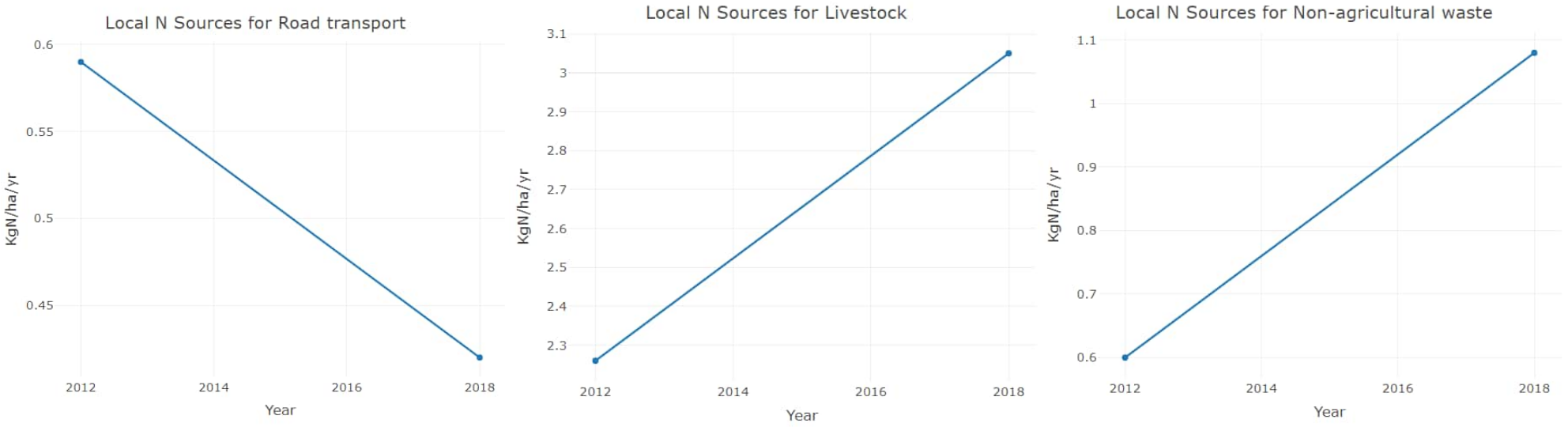
[108] Available at http://publications.naturalengland.org.uk/file/5113429933424640 [accessed 25/11/2022]

Figure 4. Source apportionment for nitrogen deposition at The Mens SAC, taken from APIS



8.38 Therefore, even if the A272 was closed entirely it would have a minimal benefit on nitrogen deposition at The Mens SAC. Moreover, road traffic is not only a small contributor but is getting smaller (better) as time goes by, whereas agricultural nitrogen and non-agricultural waste (already by far the biggest sources of nitrogen) are both getting worse. This can be seen from the graphs below, excerpted from APIS.

Figure 5. Trend data for nitrogen/ammonia sources at The Mens SAC, taken from APIS. While traffic-related nitrogen is improving, other sources of nitrogen are deteriorating (increasing)



8.39 In addition, AECOM have taken no account of the ban on petrol and diesel cars and vans from 2030 in our modelling, so even the small contribution reported above for Chichester Local Plan is probably an overestimate, potentially to a considerable degree. For example, Automated Number Plate Recognition (ANPR) surveys indicate that the area around The Mens SAC already has a greater than average number of electric vehicles on the network. Given the contribution of traffic to nitrogen at the SAC is only 5% now, and other more major sources are getting bigger whereas traffic is getting smaller, it is perfectly possible that the contribution could have fallen close to zero by 2039 without any need for local intervention, given expected continued falls in traffic emissions and expected increases in agricultural emissions.

8.40 It is therefore concluded that traffic growth on the A272 over the Local Plan period will not materially interfere with the conservation objective target for this SAC to reduce air pollution to below critical levels and loads. Traffic is only a minor source of ammonia and nitrogen at this SAC (5%) and only affects an area local to the A272. Nitrogen deposition due to traffic has been improving since at least 2012 and is expected to continue to improve in the future, such that even allowing for traffic growth there will still be a large net reduction in nitrogen deposition by 2039. The contribution of Chichester Local Plan to nitrogen will be small (a maximum of 1.3% of the critical load) and very localised (imperceptible at distances greater than 20m from the road) and is probably over-estimated due to inability at this stage to account for the large uptake of electric vehicles that can be expected in the second half of the plan period. In order for the SAC to meet its conservation objective targets it will clearly be necessary for the focus to be on agriculture and non-agricultural waste which collectively currently account for over 60% of atmospheric nitrogen at the SAC, are getting worse, and are not related to Local Plans, rather than traffic.

8.41 It is therefore concluded that there will be no adverse effect on the integrity of The Mens SAC either alone, or in combination with other plans or projects.

8.42 Moreover, the Local Plan provides the following policies that would reduce atmospheric pollution contributions stemming from development:

- Policy NE21: Air Quality: This policy aims to improve air quality within the district of Chichester. This includes minimising traffic generation, Air Quality Management Areas and air quality assessments.
- Policy T2: Transport and Development: This policy ensures that the development is safe, sustainable, connected and accessible by active and public travel networks and the use of air quality assessments where significant adverse effects are likely.
- Policy T3: Active Travel – Walking and Cycling Provision: Promotes sustainable transport and prioritises walking an cycling to remove vehicles from the roads.
- Policy NE1: Stand-alone Renewable Energy: The provision of renewable energy has the ability to reduce atmospheric pollution contributions.

8.43 Additionally, the Site Improvement Plan for the SAC highlights that although the critical load is exceeded the '*sensitive features are currently considered to be in favourable condition on this site*[109]', the Supplementary Advice for Conservation Objectives[110] for the site provides no further information on potential impact due to air quality.

[109] http://publications.naturalengland.org.uk/file/6144692196474880 [Accessed 1/12/2022]
[110] http://publications.naturalengland.org.uk/file/5113429933424640 [Accessed 1/12/2022]

9. Singleton and Cocking Tunnels SAC

Introduction

9.1 Singleton and Cocking Tunnels are two disused brick built railway tunnels in West Sussex running between Midhurst and Chichester. The tunnels provide ideal microclimates and protection for hibernating bats. The site is one of the best hibernacula in the UK and features hundreds of bats and a diversity of species including Bechstein's and Barbastelles. Horseshoe bats, and the last resident Greater mouse-eared bat in the UK are also present.

Features of European Interest

9.2 The Singleton and Cocking Tunnels SAC qualifies as a SAC for species. The site contains the following Habitats Directive Annex II species:

- Barbastelle *Barbastella barbastellus*.
- Bechstein's bat *Myotis bechsteinii*.

Conservation Objectives[111]

9.3 *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;*

9.4 *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.'*

Historic Trends and Current Pressures

9.5 The Singleton and Cocking Tunnels are monitored by the local bat group as part of Bat Conservation Trusts hibernation site programme. In the last 6 years bat numbers have averaged about 70 in Cocking tunnel with 110 in January 2020 and feature five or six species[112]. In the most recent Natural England condition assessment process, all of the SSSI was considered to be in favourable condition.

Key Environmental Conditions

9.6 The key environmental conditions that support the features of European interest have been defined as[113]:

- Habitat connectivity - appropriate management of hedgerows and woodlands;
- Low recreational pressure (the tunnels are not open to the public);
- Low light pollution (Bechstein's and barbastelle bats are notably sensitive to light pollution)

[111] http://publications.naturalengland.org.uk/file/4693622251585536 [Accessed 1/12/22]
[112] Designated Sites View (naturalengland.org.uk) [Accessed 1/12/2022]
[113] http://publications.naturalengland.org.uk/file/6277057719828480 [Accessed 1/12/22]

Potential Effects Linking to the Local Plan

9.7 The screening assessment undertaken in the table in Appendix A identify that following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development

Site Allocations

9.8 The following sites are within 12km of the SAC:

- Policy A2: Chichester City – Strategic Housing Location
- Policy A6: West of Chichester
- Policy A7: Land at Shopwyke (Oving Parish)
- Policy A8: Land East of Chichester
- Policy A9: Land at Westhampnett / North East Chichester
- Policy A4: Southern Gateway – Police Field, Kingsham Road
- Policy A5: Southern Gateway – Bus Station Depot and Basing Road Car Park
- Policy A11: Land at Highgrove Farm, Bosham
- Policy A12: Chidham and Hambrook Parish
- Policy A13: Southbourne Broad Location for Development
- Policy A14: Tangmere Strategic Development Location
- Policy A16: Goodwood Motor Circuit and Airfield
- Policy A20: Land South of Bognor Road
- Policy A19: Land at Chichester Business Park, Tangmere
- Policy A21: Land East of Rolls Royce

9.9 Potential linking impact pathways are as follows:

- Disturbance of bat flight lines through development within the Local Plan area

Appropriate Assessment

Disturbance of Bat Flight Lines

9.10 The Singleton and Cocking SAC is important for its barbastelle populations and radio-tracking studies have been undertaken to identify core foraging areas. As discussed in Chapter 3 (paragraph 3.39 onwards), key conservation areas have been determined as follows:

- A ‘key conservation area’ – for any development proposed within 6.5km of the SAC, all impacts will be considered; and
- A ‘wider conservation area’ – for any development proposed 6.5-12km from the SAC, significant impacts or severance of flightlines will be considered. This area encompasses the full extent from the SAC in which bats may forage.

9.11 The Local Plan does not allocate any new residential development within the South Downs National Park Authority boundary. However, all strategic residential allocations in the south of the plan area around Chichester are present within the wider conservation area, including part of the broad location for development at Southbourne. The only exceptions to this are several Gypsy and Traveller sites (Greenacre, Sunrise Southbourne, Land at Cherry West, Five Paddocks Farm, The Stables Bracklesham Lane). Therefore, these sites could impact upon the supporting habitat of bats associated with Singleton and Cocking Tunnels SAC. The same applies to any windfall development that could feasibly occur within the south of the plan area.

9.12 Policy A8: East of Chichester specifically is located adjacent to the Pagham to Westhampnett Strategic Wildlife Corridor which runs along its eastern boundary and both the site and the wildlife corridor are within the 12 km conservation zone for the Singleton and Cocking Tunnels SAC. Additionally, there are known flightlines from the functionally linked Goodwood barbastelle maternity roost that cross the site and the strategic wildlife corridor adjacent to the East of Chichester site. and therefore, without adequate mitigation, there would be an adverse effect on the integrity of the European site. However, with regards to protecting the SAC and the wildlife corridor the policy specifically states: *“provide for… a substantial and effective buffer with significant planting to the strategic wildlife corridor on the eastern boundary of the site… the buffer to the corridor should ensure darkness and minimise disturbance in the wildlife corridor and ensure habitats and microclimates of the corridor continue to support a wide range of species and maintain connectivity.” As well as also stating: “Ensure that the design and layout avoids harms to SAC designated species, section 41 priority species, other protected species and the existing habitat features within, and in the vicinity of the site, that support these species. The design and layout should facilitate the achievement of biodiversity net gain and facilitates the creation of high levels of habitat connectivity within the site and to the adjacent strategic wildlife corridor and wider Green Infrastructure network. Appropriate buffers, of sufficient width and landscaping design to reduce light levels down to a maximum of 0.2 lux in the horizontal plane and 0.4 lux in the vertical plane, will be required to the strategic wildlife corridor, that includes the lake/water body, to reinforce its functionality and to include mitigation measures to minimise noise to reduce disturbance from the development”.*

9.13 In addition to the specifics for the site allocation policy, the Local Plan provides policies which protect not only the SAC itself but also supporting habitats as shown in Policy NE8: Trees, Hedgerows and Woodlands of the Chichester Local Plan which outlines that; hedgerows are identified as a priority habitat requiring conservation action under the UK Biodiversity Action Plan. Therefore, all development must be undertaken in accordance with the British Standard 5837 and all tree works must be carried out in accordance with British Standard 3998. This is set out in the following policy:

- *‘Development proposals will be granted where it can be demonstrated that all of the following criteria have been met;*
  - *Proposals conserve and, where appropriate, enhance existing valued and protected trees, hedgerows and woodlands;*
  - *Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and trees; veteran trees; protected trees, groups of trees and woodland and hedgerows) should be refused unless there are wholly exceptional reasons and a suitable compensation strategy in accordance with relevant legislation, policy and guidelines;*
  - *Loss or damage of woodland and hedgerows that are priority habitats and non-protected but valued trees, woodland, community orchards, and all hedgerows should be avoided, and if demonstrated as being unavoidable, appropriate mitigation measures are provided;*
  - *Proposals should maximise opportunities for planting of new trees, woodlands and hedgerows to contribute to biodiversity net gain, green infrastructure and nature recovery strategies and networks. In addition, proposals will be required to plant two trees for each one lost through development; provide new planting to thicken existing hedgerows, and fill in all gaps in all hedgerows;*

- *Proposals should have a minimum buffer zone of 15 metres from the boundary of ancient woodland or veteran trees to avoid root damage (known as the root protection area);*
- *All major development proposals will be required to provide street tree planting;*
- *Development proposals must demonstrate that appropriate protection measures are in place prior to any work on site and throughout the development process as part of a tree protection plan;*
- *Suitable opportunities for the restoration, enhancement or planting of trees, woodland, and hedgerows are identified and incorporated into a comprehensive landscaping plan; and*
- *Where appropriate, the Council will seek minimum five-year maintenance and management plans to accompany the soft landscaping proposals.*
- *Trees proposed for landscaping and replacement planting should be selected from a diverse range and variety of native species to help provide long-term resilience to pests, diseases and climate change.*

The council will consider development proposals against the requirements and standards contained in legislation as well as current local and national guidance and practice'

9.14 Since hedgerows and woodlands are key supporting habitats used by bat species to facilitate movement between foraging habitats, this policy provides for adequate mitigation for the protection of bat flightlines within Chichester. However, barbastelle bats will also forage in and around other habitats (particularly wetlands and flood meadows) if their prey abundance is sufficiently great.

9.15 Protection of these habitats would be facilitated by Policy NE5: Biodiversity and Biodiversity Net Gain states: '*All development shall ensure the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks including:*

- *Internationally designated sites (SPA, SAC, Ramsar)*
- *Irreplaceable habitats, including ancient woodland and ancient or veteran trees*
- *Nationally designated sites, such as Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Marine Conservation Zones (MCZ)*
- *Riverine and Marine Habitats*
- *Priority Habitats and Species*
- *Biodiversity Opportunity Areas (BOA)*
- *Locally designated sites, such as Sites of Nature Conservation Importance and Local Nature Reserves*
- *Wildlife corridors and steppingstones*

Opportunities to conserve, protect, enhance and recover biodiversity and contribute to wildlife and habitats connectivity will be undertaken, including the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations'.'

9.16 Finally, Policy NE6: Chichester's Internationally and Nationally Designated Habitats states with regards to The Mens SAC, Ebernoe Common SAC and Singleton and Cocking Railway Tunnels SAC: '*Development proposals on greenfield sites and sites that support, or are in close proximity to, suitable commuting and foraging habitats (including mature vegetative linear features such as woodlands, hedgerows, riverine and wetland habitats) within the following ranges (as shown on the Policies Map) should have due regard to the possibility that barbastelle and Bechstein's bats will be utilising the site. Such proposals will be required to incorporate necessary surveys and ensure that key features*

(foraging habitat and commuting routes) are retained, in addition to a suitable buffer[114] to safeguard against disturbance:

- *Key Conservation Area – 6.5km: all impacts to bats must be considered given that habitats within this zone are considered critical for sustaining the populations of bats within the SACs; and*
- *Wider Conservation Area – 12km: significant impacts on severance to flight lines to be considered.*

Regard should be had to the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol (2018), or any subsequent equivalent document.'

9.17 Given the rarity of the barbastelle bats, effects of development on their habitat (whether commuting or foraging habitat) is a material consideration in the planning process whether or not the bats in question are associated with a European site. This policy, therefore, enables protection of barbastelle bat habitat and (if it cannot be preserved) would also enable the Council to require that provision was made for replacing any loss of foraging habitat that may be anticipated, prior to its loss.

9.18 Along with implementation of the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol' (2017), the above policies provide a protective framework for the SAC and the Local Plan will not result in an adverse effect in integrity on this SAC. However, although the Local Plan provides a robust policy framework, given that there are known flightlines that cross the East of Chichester site from functionally linked barbastelle maternity colonies, and that there would be adverse impact on the SAC without adequate mitigation, it is still essential that any planning application for this site undergo a project level HRA to ensure adequate mitigation is established.

Recommendations

9.19 It is therefore recommended that wording regarding project level HRA for this site is included within the Policy A8: East of Chichester such as 'A*ny development brought forward at this site will require a project level HRA to establish that adequate mitigation is in place in line with the submission of a planning application to ensure no adverse effects on the integrity of Singleton and Cocking Tunnels SAC or any other European sites.'*

[114] The scale of the buffer will need to be determined on a case-by-case basis, informed by bat activity survey work and would take account of the species involved and their sensitivity to disturbance/artificial lighting and the natural screening provided by existing surrounding vegetation.

10. Arun Valley SAC/SPA/Ramsar site

Introduction

10.1 Consultation with Natural England on 25th November 2021 identified that Natural England are in the process of undertaking a condition assessment. The condition assessment at the time of writing this report has not been published on the Natural England Website. The consultation identified that due to an increased survey effort in 2021 a small population of little whorlpool ram's-horn snail *Anisus vorticulus* (the SAC feature) were identified within one location in Amberley. Despite the increased survey efforts, little whorlpool ram's-horn snail has declined from up to three quarters of its former range within the SAC designated sites. The former range was thought to be a quarter of the UK population of this rare species. Little whorlpool ram's-horn snail is not meeting its conservation objectives. Natural England have not yet analysed the plant and invertebrate data fully but they note that some of the Ramsar plants are also declining. In addition, Natural England identify that the wintering birds of the SPA are not meeting their conservation objectives though teal (part of the assemblage) is increasing.

Reasons for Designation

10.2 Annex II species that are a primary reason for selection of this site as an SAC:

- Little whorlpool ram's-horn snail *Anisus vorticulus*

10.3 The SAC is designated for the following species:

- Bewick's swan *Cygnus columbianus bewickii* (non-breeding)
- Wintering bird assemblage

Conservation Objectives

10.4 *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;*

10.5 *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;*

- *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*

10.6 *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;*

10.7 *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 the habitats of qualifying species*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site.*

10.8 Arun Valley **Ramsar** site qualifies under the following Ramsar criteria. [115]

Table 14. Arun Valley Ramsar site criteria.

Ramsar criterion	Description of criterion	Arun Valley Ramsar
2	A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.	The site holds seven wetland invertebrate species listed in the British Red Data Book as threatened. One of these, *Pseudamnicola confusa*, is considered to be endangered. The site also supports four nationally rare and four nationally scarce plant species.
3	A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.	In addition to the Red Data Book invertebrate and plant species, the ditches intersecting the site have a particularly diverse and rich flora. All five British duckweed *Lemna* species, all five watercress *Rorippa* species, and all three British water milfoils (*Myriophyllum* species), all but one of the seven British water dropworts (*Oenanthe* species), and two-thirds of the British pondweeds (*Potamogeton* species) can be found on site.
5	A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.	Species with peak counts in the winter: 13,774 waterfowl with a 5 year peak mean 1998/99 – 2002/03
Species or populations identified subsequent to designation for possible future consideration		
6	A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.	Species with peak counts in the winter: Northern pintail *Anas acuta* – 641 individuals, representing an average of 1% of the population with a 5 year peak mean 1998/99 – 2002/03

Key Environmental Conditions

10.9 The key environmental conditions for this SAC[116] are:

- Maintain appropriate water levels
- Investigate and monitor the impacts of point and diffuse water pollution
- Maintain appropriate ditch management

Potential Effects Linking to the Local Plan

10.10 The screening assessment undertaken in the table in Appendix A identify that the following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs

[115] http://jncc.defra.gov.uk/pdf/RIS/UK11013.pdf [accessed 01/10/2018]
Note: Defra and Natural England have not produced a Conservation Advice package, instead focussing on the production of High Level Conservation Objectives. Natural England considers the Conservation Advice packages for the overlapping European Marine Site designations to be, in most cases, sufficient to support the management of the Ramsar interests.
[116] http://publications.naturalengland.org.uk/file/5185212862431232 [Accessed 06/12/22]

- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development
- Policy A15: Loxwood

Site Allocations

10.11 There are no site allocations within close proximity of this SAC site. The closest site allocation is approximately 12 km south west of the SAC/ SPA and Ramsar. As a result, impacts on functionally-linked habitat do not need further discussion.

10.12 The Local Plan does not allocate any new residential development north of the South Downs National Park Authority boundary. However, it does allocate a quantum of growth to both Loxwood, Wisborough Green, Kirdford and Plaistow and Ifold parishes (220 dwellings to Loxwood (Policy A15), 75 to Wisborough Green, 50 to Kirdford and 25 to Plaistow and Ifold). Actual sites will be identified in the respective neighbourhood plans in due course Wisborough Green Parish is over 5km north of the SAC/SPA and Ramsar site.

10.13 Potential linking impact pathways are as follows:

- Water quality, level and flow - water neutrality

Appropriate Assessment

Reduced Water Quantity, Level and Flow – Water Neutrality

10.14 Excessive changes to the hydrological integrity, such as through effects on water flow and volume, of European Sites are most likely to be the consequence of increased water abstraction for the public water supply and surface water run-off from impermeable urban surfaces.

10.15 The Arun Valley SAC is designated for its population of little whorlpool ram's-horn snails and Natural England's Site Improvement Plan highlights that a maintenance of adequate water levels (0.3cm below ditch neck) is critical to the survival and migration of this species. Furthermore, the Ramsar is designated for its outstanding assemblage of wetland plants and invertebrates, all of which depend on appropriate water levels throughout at least parts of their life cycle. The SAC has a relatively narrow hydrological catchment and its water level is primarily maintained by a few key rivers that traverse the plain.

10.16 Natural England advised Chichester District Council by way of a Position Statement issued on 21 September 2021[117] that they were concerned about the Pulborough groundwater abstraction and the effect they consider it has on water levels/flows in the Arun Valley SAC and Ramsar site. Natural England believe the abstraction at Pulborough is having an effect on Amberley Brooks SSSI and Pulborough Brooks SSSI, which form parts of the SAC, SPA and Ramsar site. It stated: '*As it cannot be concluded that the existing abstraction within Sussex North Water Supply Zone is not having an impact on the Arun Valley site, we advise that developments within this zone must not add to this impact*'.

10.17 A further advice note was issued in February 2022[118] that detailed that Natural England is undertaking a full integrated condition assessment of the SSSI sites that make up the SAC/SPA and Ramsar and that the present indication, on the basis of the water levels is that the site's condition would be 'Unfavourable'. However, the final results are yet to be published, although existing abstraction cannot be ruled out as having an adverse effect and if further development requires increased abstraction such development is likely to have an adverse effect on the SAC/Ramsar.

10.18 Natural England advised in February 2022 that they are "*closely involved with the relevant local authorities, the Environment Agency and Southern Water in developing a long-term strategy to*

[117] Position_statement_on_Water_Neutrality_Sept_21_2021.pdf (chichester.gov.uk) [Accessed 02/12/22]
[118] Water_Neutrality_Advice_Note_Feb_2022_V21.pdf (chichester.gov.uk) [Accessed 02/12/22]

integrate Water Neutrality into the relevant Local Plans.' The affected planning authorities have worked together to undertake and complete this work that has now been published. Natural England have issued a statement in November 2022[119] endorsing the mitigation strategy put forward within the Sussex North Water Neutrality Study: Part C – Mitigation Strategy[120] undertaken by JBA Consulting on behalf of the affected authorities, Crawley Borough Council and Chichester and Horsham District Councils.

10.19 The main strategy of the mitigation document is to ensure that the Water Resource Zone is 'water neutral' in other words for every new development, total water use in the region after the development must be equal to or less than the total water use in the region before the new development. This means to reduce the demand for water from the new development as much as possible and any remaining demand would be offset elsewhere within the region.

10.20 The mitigation strategy recommends a water efficiency target of 85 litres per person per day (lppd) for all newly built residential development, which is much more stringent than the current Building Regulations Optional Standard of 110 lppd. For non-household development, a score of three credits within the water (Wat 01 Water Consumption) issue category should be achieved for the BREEAM New Construction Standard, a 40% reduction compared to baseline standards. This, however, will not ensure complete water neutrality on the SAC/Ramsar. There will still be a shortfall between demand and neutrality which will need to be mitigated through offsetting. Offsetting is both costly and requires capacity, which is not unlimited in the Sussex North WRZ. Additionally, offsetting must be in place before the water demand is generated i.e. before the dwellings are occupied. If it is not possible to provide sufficient offsetting, either as it cannot be delivered fast enough or not enough is available to meet demand, this will restrict the amount of growth that can go ahead.

10.21 Chichester Local Plan provides a policy to ensure the capture of the water neutrality for the Arun Valley SAC/Ramsar in Policy NE17: Water Neutrality which states: '*1. All development within the Sussex North Water Resource Zone (WRZ) will need to demonstrate water neutrality through water efficient design and offsetting of any net additional water use of the development. This is to be achieved by ensuring that:*

Water Efficient Design

a) New residential development is designed to utilise no more than 85 litres of mains supplied water per person per day;
b) New non-domestic buildings to achieve a score of 3 credits within the water (WAT01 Water Consumption) issue category for the BREEAM Standard or an equivalent standard set out in any future update; and

Offsetting Water Use

c) Development proposals must demonstrate that having achieved water efficient design, any remaining mains-supplied water use from the development is offset such that there is no net increase in mains-supplied water use within the WRZ compared with pre-development levels.

Offsetting Schemes

- A local planning authority-led water offsetting scheme will be introduced to bring forward development supported by Local and Neighbourhood Plans. The authorities will manage access to the offsetting scheme to ensure that sufficient water capacity exists to accommodate planned growth within the plan period.
- Development proposals are not required to utilise the local planning authority-led offsetting scheme and may bring forward their own offsetting schemes. Offsetting schemes can be located within any part of the WRZ, with the exception that offsetting will not be accepted within the Bramber/Upper Beeding area identified on the *WRZ map*, unless the application site is located within the Bramber/Upper Beeding area.

Alternative Water Supply

[119] https://www.chichester.gov.uk/media/37580/Natural-Englands-endorsement-of-Sussex-Water-Neutrality-Study-Part-C-Mitigation-Strategy/pdf/Natural_England_s_endorsement_of_Sussex...igation_Strategy_Final_24_Nov_2022.pdf [Accessed 02/12/22]
[120] https://www.chichester.gov.uk/media/37581/Sussex-North-Water-Neutrality-Study-Part-C-Mitigation-Strategy/pdf/EYP-JBAU-XX-XX-RP-EN-0004-A1-C01-Water_Neutrality_Assessment_Part_C.pdf [Accessed 02/12/22]

- Where an alternative water supply is to be provided, the statement will need to demonstrate that no water is utilised from sources that supply the Sussex North WRZ. The acceptability of alternative water supplies will be considered on a case-by-case basis.

Water Neutrality Statement

- A water neutrality statement will be required to demonstrate how policy requirements have been met in relation to water supply, water efficient design and offsetting. The statement shall provide, as a minimum, the following:
- baseline information relating to existing water use within a development site;
- full calculations relating to expected water use within a proposed development; and
- full details of how any remaining water use will be offset.'

10.22 Additionally, the Chichester Local Plan also provides protective policies for European sites in general including Policy NE6: Chichester's Internationally and Nationally Designated Habitats, which includes a specific paragraph regarding water neutrality stating: '*Development will only be permitted where it would not lead to an adverse effect upon the integrity, either alone or in-combination, directly or indirectly, on internationally, European and nationally important habitat sites including: a) Water neutrality in the Sussex North Water Resource Zone – Arun Valley SPA and SAC. Development proposals within the Sussex North Water Resource Zone will provide mitigation for any net per capita increase in water consumption, as defined in the water budget, in accordance with Policy NE16 (Water Management and Water Quality*)'.

10.23 Given there is a specific policy framework and a mitigation strategy in place for ensuring water neutrality in combination, it can be concluded that the Chichester Local Plan will not cause an adverse impact on the Arun Valley SAC/SPA or Ramsar with regards to water neutrality.

11. Butser Hill SAC

Introduction

11.1 Butser Hill is a chalk massif with a discontinuous cap of clay-with-flints. The massif has been eroded to leave a series of deep combes in which the modern spring-line is about 1 km from the combe-head. The combes on the south-east flank support dense yew *Taxus baccata* woods and the remaining slopes of the Hill are sheep-grazed chalk grassland. The calcareous yew woods are outstanding examples of a habitat with a very small representation in Britain. The series of vegetation types represented in the SSSI – chalk grassland, mixed scrub and yew wood – were the subject of a series of pioneer ecological studies.

Reasons for Designation

11.2 Butser Hill qualifies as a SAC for its habitats. The site contains the Habitats Directive Annex I habitats of:

- Dry grasslands and scrublands on chalk or limestone: the richest terricolous lichen flora of any chalk grassland site in England. Also supports the distinctive *Scapanietum asperae* or southern hepatic mat association of leafy liverworts and mosses on north-facing chalk slopes. This association is very rare in the UK and Butser Hill supports the largest known example.
- Yew-dominated woodland

Conservation Objectives[121]

11.3 *'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;*

11.4 *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*
- *The structure and function (including typical species) of qualifying natural habitats, and*
- *The supporting processes on which qualifying natural habitats rely'*

Historic Trends and Current Pressures

11.5 The site has traditionally been vulnerable to the effects of surrounding agriculture – i.e. spray –drift causing eutrophication. The SAC is now within the boundary of the South Downs National Park. Most of the SAC is in favourable condition, and landowners, in conjunction with English Woodland Grant Schemes have been removing inappropriate conifers and clearing excessive scrub.

11.6 The environmental requirements of Butser Hill SAC are mainly:

- Maintenance of grazing
- Minimal air pollution – nitrogen deposition may cause reduction in diversity, sulphur deposition can cause acidification
- Absence of direct fertilisation
- Well-drained soils
- Controlled recreational pressure
- No spray-drift (i.e. eutrophication) from surrounding intensive arable land.

[121] http://publications.naturalengland.org.uk/file/5684004183343104 [accessed 15/10/2018]

Potential Effects Linking to the Local Plan

11.7 The screening assessment undertaken in the table in Appendix A, identifies that the following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development

Site Allocations

11.8 There are no site allocations located close to the SAC. The closest strategic location for development is the Southbourne Broad Location for Development which is approximately 12km south of the SAC

11.9 Potential linking impact pathways are as follows:

- Atmospheric pollution

Appropriate Assessment

Atmospheric Pollution

11.10 Habitats for which Butser Hill SAC is designated are sensitive to changes in atmospheric pollution. At its closest, Butser Hill SAC is 5m from the A3. The closest allocation to the SAC is in Southbourne which is over 12km from the SAC boundary.

11.11 The main designated habitat for this SAC is calcareous grassland. According to APIS, the minimum Critical Load of nitrogen for calcareous grassland is 15 kg/N/ha/yr. APIS also identifies that the existing nitrogen deposition rate at the transect location is approximately 77 kg/N/ha/yr. Therefore, nitrogen deposition rates are already far in exceedance of the critical load. The Critical Level for ammonia for chalk grassland is 3 µg NH3/m3. This is only exceeded at the edge of the transect (closest to the road), otherwise the SAC falls below this concentration.

11.12 With regards to NOx the critical level is set at 30 µg/m3. The data shows the NOx Critical Level is not exceeded. As both baseline and all future concentrations of NOx and ammonia are forecast to be below the Critical Levels it can be concluded that NOX and ammonia itself will not have an adverse impact upon the SAC and will only be considered further within the assessment as a source of nitrogen deposition.

Nitrogen results

11.13 An assessment of air quality was undertaken for both alone impacts i.e. the Chichester Local Plan and in-combination e.g. Chichester Local Plan in combination with all other growth from neighbouring authorities. The closest points for each result are shown in Tables 14 and 15 below. In this section discussion will focus on the contribution of the Chichester Local Plan alone.

Table 15. Modelled air quality results for road links relevant to Butser Hill European site (in-combination)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
BSHL	A3	5	78.85	62.65	71.01	8.36

Table 16. Modelled air quality results for road links relevant to Butser Hill European site (in isolation)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
BSHL	A3	5	78.85	70.84	71.01	0.18

11.14 Data shows the minimum total annual mean nitrogen deposition to the SAC in the vicinity of the road during the Base year of 39.81 kgN/ha/yr at 200m from the road, rising to 78.85 kgN/ha/yr closest to the road. Therefore, the SAC is already far in exceedance of the Critical Load for nitrogen deposition on calcareous grassland in the Base year. However, Paragraph 5.26 of Natural England guidance[122] states that '*An exceedance alone is insufficient to determine the acceptability (or otherwise) of a project'*. Where an exceedance of the Critical Load is expected, it is also necessary to consider whether the forecast dose will be imperceptible. As per paragraph 4.25 of same guidance '*…1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect'*.

11.15 As the deposition rate is already in exceedance of the Critical Load, this assessment therefore first looks at the contribution of the Chichester Local Plan in terms of a significant increase above the Critical Load. For Butser Hill SAC, 1% of the Critical Load is 0.15 kgN/ha/yr.

11.16 In order to assess the contribution of the Chichester Local Plan alone it is necessary to separate it from the rest of development in the South Downs National Park Authority, Horsham District Council and other neighbouring authorities. The contribution of the Local Plan alone is shown by the difference between Do Minimum 2040 and the Do Something 2040. In line with IAQM guidance, data for the immediate roadside is not used in the assessment due to reduced model accuracy that close to the road, so the data for 10m from the roadside are reported below as a worst-case.

11.17 It can be seen that, at 10m from the roadside, the Do Minimum deposition rate is 70.84 kgN/ha/yr while the Do Something deposition rate is 71.01 kgN/ha/yr. The difference between the Do Minimum 2040 and Do Something 2040 scenario is 0.18 kgN/ha/yr, which is very slightly greater than 1% of the Critical Load (15 kgN/ha/yr) for Butser Hill SAC. As such the contribution to nitrogen deposition at the SAC from the Chichester Local Plan is small but needs further investigation.

Ecological interpretation

11.18 Effects on Butser Hill SAC due to increased nitrogen from Chichester Local Plan-derived traffic growth cannot be dismissed based on purely numerical criteria as the worst-case deposition due to the Local Plan marginally exceeds 1% of the critical level/load. However, Natural England guidance makes it clear that exceedance of these thresholds does not automatically mean an adverse effect on integrity will arise. Paragraph 5.28 of that guidance states '*In practice, where a site is already exceeding a relevant benchmark, the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner'*.

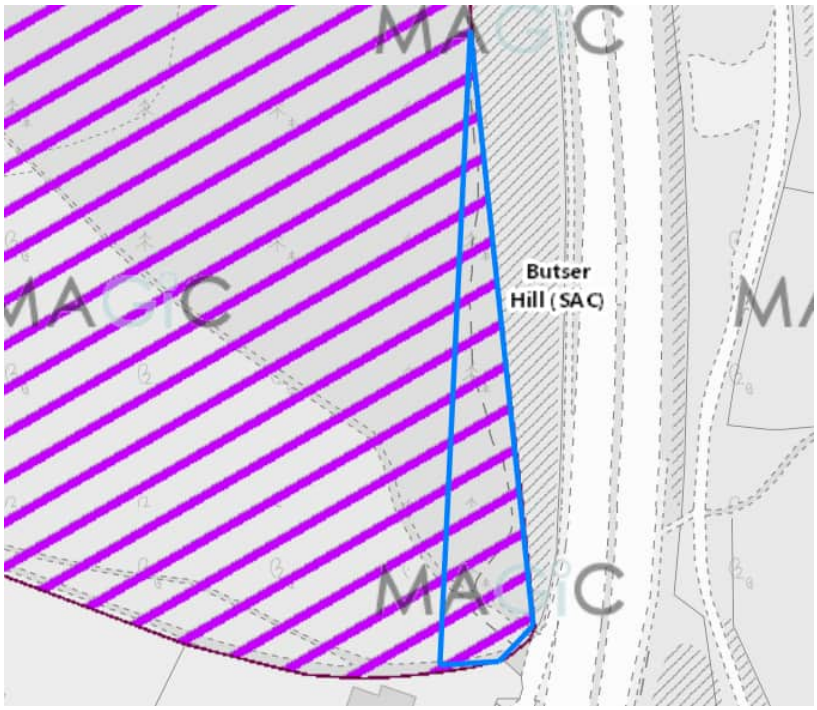
11.19 Firstly, it is necessary to consider the conservation objectives for the SAC. Within that context, it should be noted that the 2020 condition assessment for the SSSI underlying the SAC state that '*The chalk grassland at Butser Hill SSSI is, overall, in favourable condition with… typical chalk grassland flora*

[122] http://publications.naturalengland.org.uk/publication/4720542048845824

which is very rich and varied… The floristic composition varies over the site, but all areas are floristically diverse and none are under [within] *acceptable limits'*. Therefore, the current highly elevated nitrogen deposition rates at the SAC do not appear to be having a negative effect on the key features of the site. That said, one of the targets within the Conservation Objectives Supplementary Advice[123] is to "*Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).*"

11.20 Key factors to consider in interpreting the air quality modelling results are how much of the SAC would be affected by the forecast impacts, how important is traffic as an overall source of nitrogen at the SAC and what is the current and likely trend for these pollutants from various sources. All of these factors will influence which sources of nitrogen are most important to control and reduce in order to ensure the SAC achieves the above-mentioned conservation objective target of restoring air quality to below critical loads/levels.

11.21 Since the contribution of Chichester Local Plan to elevated nitrogen and ammonia in the SAC is only slightly above an imperceptible level even at the closest point on the A3 to the SAC only 0.1% of the SAC is affected to a greater than imperceptible degree by the Local Plan. Therefore 99.9% of the SAC will be affected to an imperceptible degree by the Chichester Local Plan and the 0.1% that will be affected would only be subject to a small (c. 1.2% of the critical level/load) increase in pollution and only represents a small sliver of habitat closest to the road (see screencap below, affected area within the blue line).

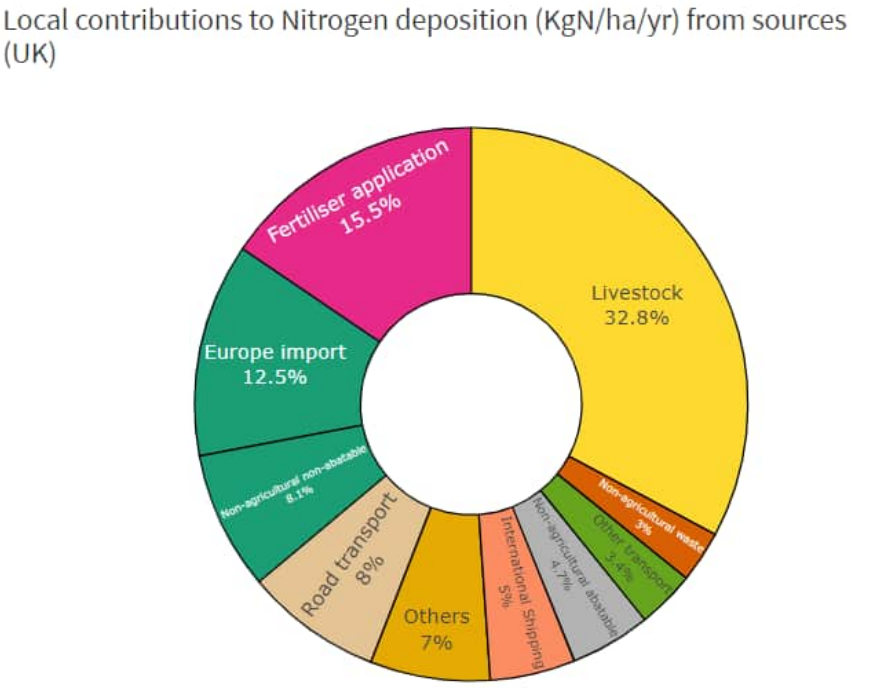


11.22 Moreover, for nitrogen deposition this would not constitute a ***net*** increase but rather an increase compared to a hypothetical scenario of no traffic growth. Even with the Chichester Local Plan and all other forecast traffic growth there would still be a large ***net reduction*** (improvement) in nitrogen deposition of more than 8 kgN/ha/yr.

11.23 In addition, unlike some other SACs the Air Pollution Information System shows that road traffic is a minor source of nitrogen at Butser Hill SAC (8%). In contrast, nearly 50% (48.3%) of atmospheric nitrogen at the SAC derives from agriculture (fertiliser and livestock combined). Unlike road traffic (which has a very localised impact zone) agriculture will affect nitrogen deposition across the entire SAC.

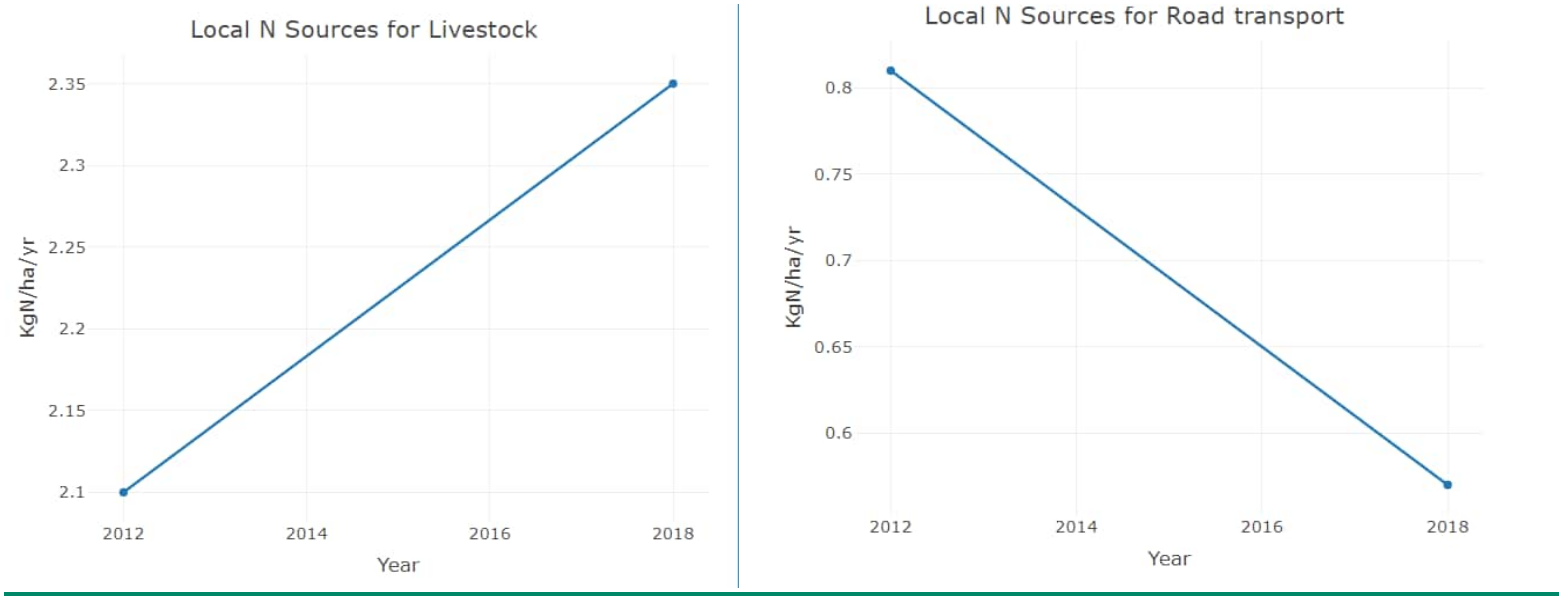
[123] Available at http://publications.naturalengland.org.uk/file/5113429933424640 [accessed 25/11/2022]

Figure 4. Source apportionment for nitrogen deposition at Butser Hill SAC, taken from APIS



11.24 Therefore, even if the A3 was closed entirely it would have a relatively minimal benefit on nitrogen deposition at Butser Hill SAC. Moreover, road traffic is not only a small contributor but is getting smaller (better) as time goes by, whereas agricultural nitrogen (already by far the biggest source of nitrogen) is getting worse. This can be seen from the graphs below, excerpted from APIS.

Figure 5. Trend data for nitrogen/ammonia sources at Butser Hill SAC, taken from APIS. While traffic-related nitrogen is improving, other sources of nitrogen are deteriorating (increasing)



11.25 In addition, AECOM have taken no account of the ban on petrol and diesel cars and vans from 2030 in our modelling, so even the small contribution reported above for Chichester Local Plan is probably an overestimate, potentially to a considerable degree. Given the contribution of traffic to nitrogen at the SAC is only 8% now, and other more major sources are getting bigger whereas traffic is getting smaller, it is perfectly possible that the contribution could have fallen close to zero by 2040 without any need for local intervention, given expected continued falls in traffic emissions and expected increases in agricultural emissions.

11.26 It is therefore concluded that traffic growth on the A3 over the Local Plan period will not materially interfere with the conservation objective target for this SAC to reduce air pollution to below critical levels and loads. Traffic is only a minor source of nitrogen at this SAC (8%) and only affects a very small area very local to the A3. Nitrogen deposition due to traffic has been improving since at least 2012 and is expected to continue to improve in the future, such that even allowing for traffic growth there will still be a large net reduction in nitrogen deposition by 2040. The contribution of Chichester Local Plan to nitrogen will be small (a maximum of 1.2% of the critical load) and very localised and is probably over-estimated due to inability at this stage to account for the large uptake of electric vehicles that can be expected in the second half of the plan period. In order for the SAC to meet its conservation objective targets it will clearly be necessary for the focus to be on agriculture which collectively currently accounts for almost 50% of atmospheric nitrogen at the SAC, is getting worse, and is not related to Local Plans, rather than traffic.

11.27 It is therefore concluded that there will be no adverse effect on the integrity of Butser Hill SAC either alone, or in combination with other plans or projects.

12. Kingley Vale SAC

Introduction

12.1 The Kingley Vale SAC comprises 208ha of chalk grassland, scrub, mixed oak *Quercus* sp. and ash woodland and ancient yew forest. The reserve is a steep sided dry valley, the bottom of which is covered in ancient yew forest. The slopes of the valley support up to 50 species of flowering plant and grasses per square metre.

Reasons for Designation[124]

12.2 The Kingley Vale valley qualifies as a SAC due to the following Annex I habitats:

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates *Festuco-Brometalia* for which the area is considered to support a significant presence;
- Yew-dominated woodland for which this is considered to be one of the best areas in the UK.

Conservation Objectives[125]

12.3 *'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;*

12.4 *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*
- *The structure and function (including typical species) of qualifying natural habitats, and*
- *The supporting processes on which qualifying natural habitats rely'*

Historic Trends and Current Pressures

12.5 The long-term conservation of the yew forest requires the maintenance of nurse scrub habitat and the regulation of numbers of resident deer. Current management practices address these problems. The threat to characteristic chalk grassland of scrub invasion is considered to be adequately countered by the cutting and grazing regimes currently employed.

12.6 The key vulnerabilities to the SAC are:

- Over grazing by deer
- Scrub invasion
- Management of cutting and grazing regimes
- Atmospheric pollution

Potential Effects Linking to the Local Plan

12.7 The screening assessment undertaken in the table in Appendix A identifies that the following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

[124] http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUcode=UK0012767 [accessed 15/10/2018]
[125] [125] Natural England. European Site Conservation Objectives for Chichester and Langstone Harbours Special Protection Area (2014) Available: http://publications.naturalengland.org.uk/publication/5789102905491456 [Accessed: 15/10/2018] http://publications.naturalengland.org.uk/file/6012259255975936 [accessed 1215/10/2018]

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development

Site Allocations

12.8 The closest strategic allocations to this site are:

- Policy A13: Southbourne Broad Location for Development,
- Policy A6: Land west of Chichester; and,
- Policy A12: Chidham and Hambrook Parish

12.9 All of these are approximately 4 km south of the SAC. Limited intensification of two existing gypsy and traveller sites are also proposed approximately 3.5-5km from the SAC at Greenacre, Cemetery Lane and Tower View Nursery.

12.10 Potential linking impact pathways are as follows:

- Atmospheric Pollution

Appropriate Assessment

Atmospheric Pollution

12.11 Habitats for which Kingley Vale SAC is designated are sensitive to changes in atmospheric pollution. At its closest, Kingley Vale SAC is 130m from the B2141. The closest strategic residential allocation to the SAC is Land at Southbourne, and West of Chichester at approximately 4km from the SAC boundary.

12.12 The main designated habitat for this SAC is yew dominated woodland. According to APIS, the minimum Critical Load of nitrogen for coniferous woodland, the closest match, is 5 kg/N/ha/yr. However, the 5 kg/N/ha/yr is only utilised for coniferous forests where lichens and free-living algae are an important feature of the site. Lichens are not important features of yew dominated woodland, and therefore APIS advises in the absence of important lichens, a more appropriate critical load would be 10 kg/N/ha/yr126. APIS also identifies that the existing nitrogen deposition rate at the transect location is on average approximately 27.4 kg/N/ha/yr. Therefore, nitrogen deposition rates are already far in exceedance of the critical load. The Critical Level for ammonia for coniferous woodland is 3 µg NH3/m3, the SAC falls below this concentration.

12.13 With regards to NOx the critical level is set at 30 µg/m3. The data shows the NOx Critical Level is not exceeded. As both baseline and all future concentrations of NOx and ammonia are forecast to be below the Critical Levels it can be concluded that NOX and ammonia itself will not have an adverse impact upon the SAC and will only be considered further within the assessment as a source of nitrogen deposition.

[126] Indicative values within nutrient nitrogen critical load ranges for use in air pollution impact assessments | Air Pollution Information System (apis.ac.uk) [Accessed 09/12/2022]

Nitrogen results

12.14 An assessment of air quality was undertaken for both alone impacts i.e. the Chichester Local Plan and in-combination e.g. Chichester Local Plan in combination with all other growth from neighbouring authorities. The closest points for each result are shown in Tables 16 and 17 below. In this section discussion will focus on the contribution of the Chichester Local Plan alone.

Table 17. Modelled air quality results for road links relevant to Kingley Vale European site (in-combination)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
KGVE	B2141	5	30.53	25.95	26.14	0.19

Table 18. Modelled air quality results for road links relevant to Kingley Vale European site (in isolation)

Receptor	Road Link	Critical Load	Base Year	Future Year – DN	Future Year – DS	Absolute Change
KGVE	B2141	5	30.53	26.12	26.14	0.02

12.15 Data shows the minimum total annual mean nitrogen deposition to the SAC in the vicinity of the road during the Base year of 30.37 kgN/ha/yr at 200m from the road, rising to 30.53 kgN/ha/yr closest to the road. Therefore, the SAC is already far in exceedance of the Critical Load for nitrogen deposition on coniferous woodland in the Base year. However, Paragraph 5.26 of Natural England guidance[127] states that '*An exceedance alone is insufficient to determine the acceptability (or otherwise) of a project*'. Where an exceedance of the Critical Load is expected, it is also necessary to consider whether the forecast dose will be imperceptible. As per paragraph 4.25 of same guidance '*…1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect*'.

12.16 As the deposition rate is already in exceedance of the Critical Load, this assessment therefore first looks at the contribution of the Chichester Local Plan in terms of a significant increase above the Critical Load. For Kingley Vale SAC, 1% of the Critical Load is 0.1 kgN/ha/yr.

12.17 In order to assess the contribution of the Chichester Local Plan alone it is necessary to separate it from the rest of development in the South Downs National Park Authority, Horsham District Council and other neighbouring authorities. The contribution of the Local Plan alone is shown by the difference between Do Minimum 2040 and the Do Something 2040. In line with IAQM guidance, data for the immediate roadside is not used in the assessment due to reduced model accuracy that close to the road, so the data for 10m from the roadside are reported below as a worst-case.

12.18 It can be seen that, at 10m from the roadside, the Do Minimum deposition rate is 26.11 kgN/ha/yr while the Do Something deposition rate is 26.14 kgN/ha/yr. The difference between the Do Minimum 2040 and Do Something 2040 scenario is 0.03 kgN/ha/yr, which less than 1% of the Critical Load (5 kgN/ha/yr) for Kingley Vale SAC.

12.19 Moreover, the Local Plan provides the following policies that would reduce atmospheric pollution contributions stemming from development:

- Policy NE21: Air Quality: This policy aims to improve air quality within the district of Chichester. This includes minimising traffic generation, Air Quality Management Areas and air quality assessments.

[127] http://publications.naturalengland.org.uk/publication/4720542048845824 [Accessed 06/12/22]

- Policy T2: Transport and Development: This policy ensures that the development is safe, sustainable, connected and accessible by active and public travel networks and the use of air quality assessments where significant adverse effects are likely.
- Policy T3: Active Travel – Walking and Cycling Provision: Promotes sustainable transport and prioritises walking an cycling to remove vehicles from the roads.
- Policy NE1: Stand-alone Renewable Energy: The provision of renewable energy has the ability to reduce atmospheric pollution contributions.

12.20 As such given the contribution to nitrogen deposition at the SAC from the Chichester Local Plan is below 1% of the critical load and the Plan provides a framework to reduce atmospheric pollution contributions further, there will be no adverse effect the European site.

13. Duncton to Bignor Escarpment SAC

Introduction

13.1 Duncton to Bignor Escarpment consists of 214 ha of scarp slope woodland notified for its beech forests located within the South Downs National Park. The beech forest occurs both on steep scarp slopes and on more gently sloping hillsides in a mosaic with ash woodland, scrub and grassland. The diverse nature of the site helps support rare plants and a rich snail fauna. It is considered to be one of the best examples of beech forest in the country.

Reasons for Designation

13.2 Duncton to Bignor Escarpment qualifies as a SAC for its habitats. The site contains the Habitats Directive Annex I habitats of:

- *Asperulo-Fagetum* beech forests; Beech forest on neutral to rich soils

Conservation Objectives[128]

13.3 *'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;*

13.4 *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*
- *The structure and function (including typical species) of qualifying natural habitats, and*
- *The supporting processes on which qualifying natural habitats rely'*

Historic Trends and Current Pressures

13.5 The Site Improvement Plan for the site states that there are no current pressures affecting the SAC. However, the Supplementary Advice for Conservation Objectives[129] (SACO) mentions that the habitat type is considered sensitive to changes in air quality.

13.6 The key vulnerabilities to the SAC are:

- Maintaining key habitat connectivity
- Maintaining and restoring supporting habitat
- Maintaining and restoring appropriate variations in the woodland structure
- Maintaining and resorting the abundance of standing and fallen dead and decaying wood
- Ensuring appropriate distribution of size and age classes of trees and shrubs in the habitat
- Maintaining appropriate levels of herbivore grazing to reduce scrub but permit regeneration of key habitat
- Maintaining soil structure and function
- Maintaining deposition of air pollutants at or below cricital levels
- Maintain natural hydrological regime
- Maintain artificial lighting at lowest level

[128] http://publications.naturalengland.org.uk/file/6066421708881920 [Accessed 06/12/22]
[129] http://publications.naturalengland.org.uk/file/5226310331006976 [Accessed 06/12/22]

Potential Effects Linking to the Local Plan

13.7 The screening assessment undertaken in the table in Appendix A identifies that the following policies and site allocations have the potential to link to this European designated site and result in likely significant effects. These are as follows:

Policies

- Policy H1: Meeting Housing Needs
- Policy H2: Strategic Locations / Allocations 2021 – 2039
- Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039
- Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs
- Policy H12: Intensification Sites
- Policy E1: Meeting Employment Land Needs
- Policy E3: Addressing Horticultural Needs
- Policy E5: Retail Strategy and New Development

Site Allocations

13.8 The closest site allocations to this SAC are at Tangmere; Policy A14 Land West of Tangmere, and A19 Land at Chichester Business Park Tangmere, which are approximately 9km and 8.5km respectively south west of the SAC. Additionally, there is a Horticultural HDA just south of Easthampnett (Policy E3) which is approximately 8.5km south west of the SAC. All other strategic allocations are over 10km from the SAC. The Local Plan also allocates a quantum of dwellings for the Boxgrove Parish (Policy H3) which will be allocated specific sites within a subsequent Neighbourhood Plan. Boxgrove Parish at its closest is approximately 4.6 km south west of the SAC.

13.9 Potential linking impact pathways are as follows:

- Atmospheric Pollution

Appropriate Assessment

Atmospheric Pollution

13.10 The designated habitat for this SAC is beech woodland. According to APIS, the minimum Critical Load of nitrogen for beech woodland is 10 kg/N/ha/yr. APIS also identifies that the existing nitrogen deposition rate at the transect location is approximately 29 kg/N/ha/yr. Therefore, nitrogen deposition rates are already in exceedance of the critical load. The Critical Level for ammonia for beech woodlands is 3 µg NH_3/m^3. However, the site is also partially designated for its rich lichen and bryophyte populations which have a Critical Level of 1 µg NH_3/m^3. As such, it is this lower Level for ammonia that will be used in this assessment. With regards to NOx the critical level is set at 30 µg/m^3. The modelling does not forecast that the critical level for either NOx or ammonia will be exceeded. NOx and ammonia will only be considered further within the assessment as a source of nitrogen deposition.

Nitrogen results

13.11 An assessment of air quality was undertaken for both alone impacts i.e. the Chichester Local Plan and in-combination e.g. Chichester Local Plan in combination with all other growth from neighbouring authorities. In this section discussion will focus on the contribution of the Chichester Local Plan alone.

13.12 As previously detailed the lowest Critical Load for nutrient nitrogen deposition of the designated habitats within the SAC is 10 kgN/ha/yr for Atlantic acidophilous beech forests. Exceedance of this level can result in changes in ground vegetation and mycorrhiza, nutrient imbalance, changes to soil fauna, and changes to soil processes.

13.13 Data shows the minimum total annual mean nitrogen deposition to the SAC in the vicinity of the road during the Base year of 29.48 kgN/ha/yr at 200m from the road, rising to 32.23 kgN/ha/yr adjacent to the road. Therefore, the SAC is already in exceedance of the Critical Load for nitrogen deposition on beech woodland in the Base year. However, Paragraph 5.26 of Natural England guidance[130] states that '*An exceedance alone is insufficient to determine the acceptability (or otherwise) of a project'*. Where an exceedance of the Critical Load is expected, it is also necessary to consider whether the forecast dose will be imperceptible. As per paragraph 4.25 of same guidance '*…1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect'*.

13.14 As the deposition rate is already in exceedance of the Critical Load, this assessment therefore first looks at the contribution of the Chichester Local Plan in terms of a significant increase above the Critical Load. For Duncton to Bignor Escarpment SAC, 1% of the Critical Load is 0.1 kgN/ha/yr.

13.15 In order to assess the contribution of the Chichester Local Plan alone it is necessary to separate it from the rest of development in the South Downs National Park Authority, Horsham District Council and other neighbouring authorities. The contribution of the Local Plan alone is shown by the difference between Do Minimum 2040 and the Do Something 2040. In line with IAQM guidance, data for the immediate roadside is not used in the assessment due to reduced model accuracy that close to the road, so the data for 10m from the roadside are reported below as a worst-case.

13.16 It can be seen that, at 10m from the roadside, the Do Minimum deposition rate is 29.07 kgN/ha/yr while the Do Something deposition rate is 29.36 kgN/ha/yr. The difference between the Do Minimum 2040 and Do Something 2040 scenario is 0.26 kgN/ha/yr, which is 2.6% of the critical load. The contribution of the Local Plan alone falls below 1% of the Critical Load by c. 60m from the road. As such the contribution to nitrogen deposition at the SAC from the Chichester Local Plan is small but needs further investigation, which is continued below.

Ecological interpretation

13.17 Effects on Duncton to Bignor Escarpment SAC due to increased nitrogen from Chichester Local Plan-derived traffic growth cannot be dismissed based on purely numerical criteria as the worst-case deposition due to the Local Plan exceeds 1% of the critical level/load. However, Natural England guidance makes it clear that exceedance of these thresholds does not automatically mean an adverse effect on integrity will arise. Paragraph 5.28 of that guidance states '*In practice, where a site is already exceeding a relevant benchmark, the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner'*.

13.18 Firstly, it is necessary to consider the conservation objectives for the SAC. The Site Improvement Plan states that there are no current issues affecting the Natura 2000 feature(s) that have been identified on this site. That said, one of the targets within the Conservation Objectives Supplementary Advice is to "*Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)."*

13.19 Key factors to consider in interpreting the air quality modelling results are how much of the SAC would be affected by the forecast impacts, how important is traffic as an overall source of nitrogen at the SAC and what is the current and likely trend for these pollutants from various sources. All of these factors will influence which sources of nitrogen are most important to control and reduce in order to ensure the SAC achieves the above-mentioned conservation objective target of restoring air quality to below critical loads/levels.

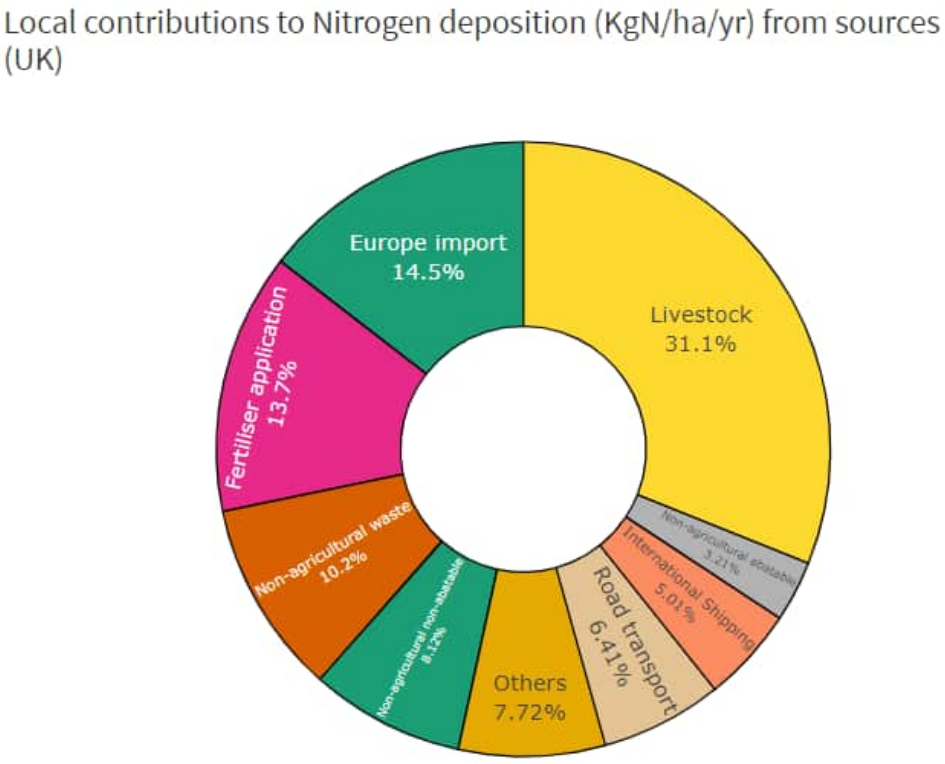
13.20 Since the contribution of Chichester Local Plan to elevated nitrogen and ammonia in the SAC falls to an imperceptible level by 60m from the roadside only 4% of the SAC is affected to a greater than imperceptible degree by the Local Plan. Therefore 96% of the SAC will be affected to an imperceptible

[130] http://publications.naturalengland.org.uk/publication/4720542048845824

degree by the Chichester Local Plan and the 4% that will be affected would only be subject to a small (c. 3% of the critical load) increase in pollution. Moreover, for nitrogen deposition this would not constitute a ***net*** increase but rather an increase compared to a hypothetical scenario of no traffic growth. Even with the Chichester Local Plan and all other forecast traffic growth there would still be a large ***net reduction*** (improvement) in nitrogen deposition of 2 kgN/ha/yr.

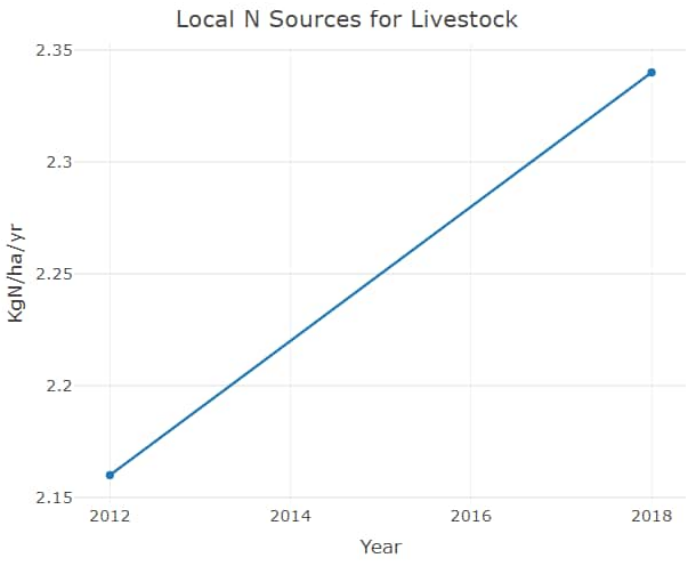
13.21 In addition, unlike some other SACs the Air Pollution Information System shows that road traffic is a minor source of nitrogen at Duncton to Bignor Escarpment SAC (6%). In contrast, nearly 50% (44.8%) of atmospheric nitrogen at the SAC derives from agriculture (fertiliser and livestock combined) and over 50% of total nitrogen at the SAC comes from just two sources: agriculture and 'non-agricultural waste' (e.g. composting, landfill and energy from waste). Unlike road traffic (which has a very localised impact zone) agriculture and non-agricultural waste will affect nitrogen deposition across the entire SAC.

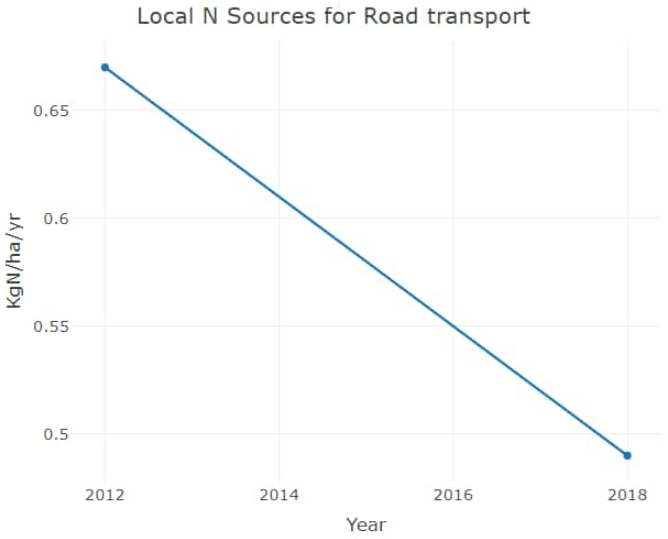
Figure 4. Source apportionment for nitrogen deposition at Duncton to Bignor Escarpment SAC, taken from APIS



13.22 Therefore, even if the A285 was closed entirely it would have a minimal benefit on nitrogen deposition at Duncton to Bignor Escarpment SAC. Moreover, road traffic is not only a small contributor but is also getting smaller (better) as time goes by, whereas agricultural nitrogen and non-agricultural waste (already by far the biggest sources of nitrogen) are both getting worse. This can be seen from the graphs below, excerpted from APIS.

Figure 5. Trend data for nitrogen/ammonia sources at Duncton to Bignor Escarpment SAC, taken from APIS. While traffic-related nitrogen is improving, other sources of nitrogen are deteriorating (increasing)





13.23 In addition, AECOM have taken no account of the ban on petrol and diesel cars and vans from 2030 in our modelling, so even the small contribution reported above for Chichester Local Plan is probably an overestimate, potentially to a considerable degree. Given the contribution of traffic to nitrogen at the SAC is only 6% now, and other more major sources are getting bigger whereas traffic is getting smaller, it is perfectly possible that the contribution could have fallen close to zero by 2040 without any need for local intervention, given expected continued falls in traffic emissions and expected increases in agricultural emissions.

13.24 Moreover, the affected area (Units 1, 2 and 3) of the SSSI have been heavily affected by land management (the most recent condition assessments state: '*The unit comprises of a large area which has been modified in the past and been re-planted by conifers. These have been removed and the area now consists of vegetation typical of disturbed soil*' and '*there has been recent forestry works carried out on this unit and as a result 30% of the unit has been felled, and the ground flora and soil have been heavily damaged by the forestry machinery*') and Unit 1 appears to be mainly ash woodland rather than beech woodland ('*The woodland is mainly comprised of ash which is dominant throughout*'). These both reduce the sensitivity of those particular management units to nitrogen deposition.

13.25 It is therefore concluded that traffic growth on the A285 over the Local Plan period will not materially interfere with the conservation objective target for this SAC to reduce air pollution to below critical levels and loads. Traffic is only a minor source of ammonia and nitrogen at this SAC (6%) and only affects an area local to the A285. Nitrogen deposition due to traffic has been improving since at least 2012 and is expected to continue to improve in the future, such that even allowing for traffic growth there will still be a large net reduction in nitrogen deposition by 2040. The contribution of Chichester Local Plan to nitrogen will be small (a maximum of 3% of the critical load) and very localised (imperceptible at distances greater than 60m from the road) and is probably over-estimated due to inability at this stage to account for the large uptake of electric vehicles that can be expected in the second half of the plan period.

13.26 In order for the SAC to meet its conservation objective targets it will clearly be necessary for the focus to be on agriculture and non-agricultural waste which collectively currently account for over 60% of atmospheric nitrogen at the SAC, are getting worse, and are not related to Local Plans, rather than traffic. This is recognised in the Supplementary Advice on the Conservation Objectives for the SAC which states '*It is recognised that achieving this* [air quality] *target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales*'.

13.27 It is therefore concluded that there will be no adverse effect on the integrity of Duncton to Bignor Escarpment SAC either alone, or in combination with other plans or projects.

14. Recommendations and Conclusions

Summary of Recommendations

Recreational Pressure

Chichester and Langstone Harbour Solent Maritime and Pagham Harbour European sites

14.1 The following recommended policy text changes are made to ensure full robustness of the Local Plan Policy Framework:

- Policy E9: Caravan and Camping Sites: To ensure this policy provides a robust framework to ensure the protection of European sites, it is recommended that policy text is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough~~):

*'**~~Whether there is a requirement~~** **The degree of protection considered desirable in order** to avoid disturbance to sensitive sites of ecological value (including ensure no adverse effects on integrity of sensitive European designated wildlife sites occurs) or to protect the tranquillity and character of the countryside, Chichester Harbour Area of Outstanding Natural Beauty and the setting of the National Park, Pagham Harbour and the undeveloped coast; and'*

- Policy NE12: Development around the Coast: It is recommended that point 1 and 2 is amended as follows (amendments in **bold**, addition underlined, removal ~~strikethrough)~~

'*1. There are no harmful effects on or net loss of nature conservation or areas of geological importance **~~in particular~~** within the Chichester and Pagham Harbours and Medmerry Realignment (including no adverse effects on the associated European designated sites);*

*2. **~~If~~** **T**he development provides recreational opportunities that **~~they~~** do not adversely affect the character, environment and appearance of the coast and Chichester Harbour Area of Outstanding Natural Beauty or **~~damage~~** **result in adverse effects on** the integrity to European designated wildlife sites'*

Loss and Degradation of Functionally Linked Supporting Habitat for Birds

Pagham Harbour SPA/Ramsar site

14.2 The following recommended policy text changes are made to ensure full robustness of the Local Plan Policy Framework:

Policy E4 Horticultural Development was screened out of the HRA as not causing a likely significant effect since it is a development management policy that lists criteria against which a given proposal would be deemed acceptable rather than making allocations or identifying a quantum of growth. However, since Policy E4 sets out the detailed criteria for accepting development within the HDAs, additional wording was recommended to ensure protection for European sites with regards to development allocated within Policy E3 Addressing Horticultural Needs: '*Ensure that development avoids harm to protected species and existing important habitats features and facilitates the achievement of biodiversity net gain and facilitates the creation of high levels of habitat connectivity within the site and to the wider Green Infrastructure network and identified Strategic Wildlife Corridors within the parish. This includes the provision of appropriate buffers as necessary in relation to important habitats which are being retained and/or created. Successfully avoid and/or mitigate potential impacts on the Pagham SPA/Ramsar, including contributing to any strategic access management issues (including on-site mitigation where required as part of the Habitats Regulations Assessment), and potential for loss of functionally linked supporting habitat.'*

Loss and Degradation of Functionally Linked Supporting Habitat for Bats

Singleton and Cocking Tunnels SAC

14.1 The following recommended policy text changes are made to ensure full robustness of the Local Plan Policy Framework:

14.2 It is recommended that wording regarding project level HRA for the East of Chichester site is included within the Policy A8: East of Chichester such as 'A*ny development brought forward at this site will require a project level HRA to establish that adequate mitigation is in place in line with the submission of a planning application to ensure no adverse effects on the integrity of Singleton and Cocking Tunnels SAC or any other European sites.'*

Other Plans and Projects

14.3 As discussed earlier in this document, a full analysis of the impacts of the Chichester Local Plan in combination with other plans and projects was made as part of that HRA report. Some of the impact pathways already discussed in this document (particularly the recreational pressure analyses) are inherently 'in combination' since they only arise when development across the core catchments of Chichester and Langstone Harbour and Pagham Harbour are considered cumulatively.

Overall Conclusion

14.4 With the inclusion of the above recommendations, it can be concluded that the Chichester Local Plan will not have an adverse effect on integrity of European designated sites, in isolation or in combination.

Appendix A Policy & Allocation Screening

Table 19. Screening Assessment (Likely Significant Effect Test) of the Local Plan Policies and Allocations

Policy	Brief Summary	Screening Outcome
Policy S1: Spatial Development Strategy	This policy identifies the broad approach to providing sustainable development in the Plan area and how development will be dispersed across this area. There are development management criteria within the Policy to ensure the suitable spread of development.	Potential Likely Significant Effect This policy defines broadly where development will be situated including non-strategic provision of development for tourism/leisure proposals in Selsey and East Wittering and has the potential to cause a likely significant effect on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy S2: Settlement Hierarchy	This policy sets out the settlement hierarchy framework for the council to achieve its vision for the plan area, meet the scale of development required and ensure the enhancement of the Plan area.	No likely significant effect. This is a development management policy which sets out the hierarchy of settlements in the plan to ensure suitable development within each category. Development management policies have no linking impact pathways and this policy can be screened out.
Policy NE1: Stand-alone Renewable Energy	This policy sets out criteria by which proposals for stand-alone renewable energy must adhere too, to be supported. Including ensuring no significant adverse impact upon ecology and wildlife and the water environment.	No likely significant effect. This is a development management policy. These polices do not have linking impact pathways. In addition, this policy provides protection to ecology, wildlife and the water environment by ensuring there are no significant adverse impacts upon these elements. This policy can be screened out.
Policy NE2: Natural Landscape	This policy requires that development proposals be carefully assessed to ensure the protection, conservation and enhancement of the Plan area's natural landscape. There are development management criteria within the policy to ensure this.	No likely significant effect. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy is designed to protect the natural landscape, although it does not afford European sites specific protection. This policy can be screened out.

Policy	Brief Summary	Screening Outcome
Policy NE3: Landscape Gaps between Settlements	This policy protects the open and undeveloped land between settlements to ensure that settlements retain individual identity. There are development management criteria within the policy to ensure this.	No likely significant effect. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy NE4: Strategic Wildlife Corridors	This policy protects the ecological value, function, integrity and connectivity of strategic wildlife corridors. There are development management criteria within the policy to ensure this.	No likely significant effect. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy provides protection to the natural environment from degrading ecological value, function, integrity and connectivity, although it does not afford European sites specific protection. This policy can be screened out.
Policy NE5: Biodiversity and Biodiversity Net Gain	This policy ensures that the conservation, protection, enhancement and restoration of biodiversity avoiding any adverse impact on the condition and recovery of all types of nature conservation sites, habitats and species within their ecological networks. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These polices do not have linking impact pathways. In addition, this policy provides specific protection for European sites ensuring any development with potential impact must be subject to an HRA. This policy can be screened out.
Policy NE6: Chichester's Internationally and Nationally Designated Habitats	This policy sets out that development will only be permitted where it would not lead to an adverse effect upon the integrity either alone or in-combination, directly or indirectly, on internationally, European and nationally important habitat sites. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy provides specific protection for each European site affected by the Local Plan. This policy can be screened out.
Policy NE7: Development and Disturbance of Birds in Chichester and Langstone Harbours, Pagham Harbour, Solent and Dorset Coast Special Protection Areas and Medmerry Compensatory Habitat	This policy sets out the zone of influence (ZoI) within which a development will have an impact on the Chichester and Langstone Harbours, Pagham Harbour, and/or Solent and Dorset Coast SPAs and the Medmerry compensatory habitat and defines the mitigation required for those developments within the ZoI, as well as describing some developments may require further assessment under the Habitats Regulations depending on location, type and size of development etc.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy provides specific protection for the Chichester and Langstone Harbours, Pagham Harbour and Solent and Dorset Coast SPAs and the Medmerry compensatory habitats and provides some description of mitigation required under various SPDs. This policy can be screened out.

Policy	Brief Summary	Screening Outcome
Policy N8: Trees, Hedgerows and Woodlands	This policy sets out criteria which development must adhere too, to be supported with regards to the protection of trees, hedgerows and woodlands whether specifically protected or not.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy provides protection to the natural environment and linear landscape features which could be utilised by species for which European sites are designated e.g., bats. However, the policy does not give specific protection to European sites themselves. This policy can be screened out.
Policy N9: Canals	This policy ensures the protection and enhancement of the Chichester Ship Canal, the Wey and Arun Canal and the Portsmouth and Arundel Canal. Developments must meet environmental, ecological, historical and transport considerations.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy ensures protection of environmental and ecological features along the canals within the Plan area which could be utilised by species for which European sites are designated e.g., bats. However, the policy does not give specific protection to European sites themselves. This policy can be screened out.
Policy NE10: Development in the Countryside	This policy sets out that only sustainable development will be supported within the countryside. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy NE11: The Coast	This policy sets out protection for coastal habitats within the Plan area. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy ensures the protection of coastal habitats for which some European sites are designated and ensures the protection, restoration, enhancement and creation of these, compensatory habitats and new coastal and wetland habitats. However, the policy does not give specific protection to European sites themselves. This policy can be screened out.
Policy NE12: Development around the Coast	This policy sets out the conditions by which development will be accepted around the coast. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, the policy also provides specific protections to Chichester and Pagham Harbours and no adverse

Policy	Brief Summary	Screening Outcome
		effects on their associated European designated sites. This policy can be screened out.
Policy NE13: Chichester Harbour Area of Outstanding Natural Beauty	This policy defines that the impact of individual projects and their cumulative effects will need to be carefully assessed on the Chichester Harbour ANOB. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, the policy protects the Chichester Harbour ANOB, by ensuring the natural beauty and local distinctive features of the ANOB are conserved and enhanced. The ANOB overlaps, at least in part, with European designated sites. However, the policy, does not give specific protection to European sites themselves. This policy can be screened out.
Policy NE14: Integrated Coastal Zone Management for the Manhood Peninsula	This policy sets out the general objectives that will be supported where proposals come forward within the Manhood Peninsula	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy NE15: Flood Risk and Water Management	This policy is designed to ensure that flooding risk and water management are suitable and sustainable for all developments. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy NE16: Water Management and Water Quality	This policy sets out the way in which development must comply with water supply, water efficiency, water quality, and wastewater to be supported. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy sets out that there should be no adverse impact on the quality of water bodies and ground water, nor will development prevent future attainment of favourable conservation status. These waterbodies overlap with European designations. However, the policy does not give specific protections to European sites. This policy can be screened out.
Policy NE17: Water Neutrality	This policy sets out that all development in the Sussex North Water Resource Zone (WRZ) are required to demonstrate water neutrality through water efficient design and offsetting any additional water use of the development. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy is a protective policy for Arun Valley SPA and Ramsar to ensure no adverse effects to qualifying features by ensuring appropriate water levels are maintained and no

Policy	Brief Summary	Screening Outcome
		further abstraction is required from the River Arun. This policy can be screened out.
Policy NE18: Source Protection Zones	This policy is designed to protect public water sources from contamination.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy NE19: Nutrient Neutrality	This policy states that development with overnight accommodation must demonstrate that the development will be nutrient neutral for the lifetime of the development.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. In addition, this policy relates directly to Chichester and Langstone Harbour SPA/Ramsar and ensuring no adverse impacts with regards to wastewater nutrient outputs. This policy provides specific protections to the Chichester and Langstone Harbours SPA/Ramsar. This policy can be screened out.
Policy NE20: Pollution	This policy regards the prevention of pollution from developments. The development proposals must be designed to protect and improve on amenities of existing and future residents and the environment generally.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy generally protects the environment but does not provide specific protections to European sites. This policy can be screened out.
Policy NE21: Lighting	This policy sets out criteria by which developments must adhere to for support with regards to lighting schemes. There are development management criteria within the policy to ensure this.	No likely significant effect. This is a development management policy. These policies do not have linking impact pathways. In addition, it sets out criteria designed to protect Chichester Harbour AONB and strategic wildlife corridors from light pollution. These areas may overlap with European sites and areas which species for which European sites are designated may utilise. The policy also ensures no significant adverse impact on nature conservation and biodiversity, although not strictly a protection for European sites, these can be captured under the general heading of 'nature conservation'. This policy can be screened out.
Policy NE22: Air Quality	This policy details the criteria by which developments must adhere to in relation to preventing a degradation in air quality. There are development management criteria within the policy to ensure this.	No likely significant effect.

Policy	Brief Summary	Screening Outcome
		This is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out.
Policy NE23: Noise	This policy details the criteria by which developments must adhere in relation to noise pollution. There are development management criteria within the policy to ensure this.	No likely significant effect. This is a development management policy. These policies do not have a linking impact pathway. The policy also requires a noise assessment must be completed if the development has potential significant impact on the environment including wildlife habitats. Although the policy does not specifically protect European sites, it does protect habitats for which European sites are designated. This policy can be screened out.
Policy NE24: Contaminated Land	This policy details the criteria that must be adhered to with regards to contaminated land within development proposals. There are development management criteria within the policy to ensure this.	No likely significant effect. This is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out.
Policy H1: Meeting Housing Needs	The policy sets out that at least 10,350 dwellings would be required to be delivered in the Plan period to 2039. The policy tabulates the broad areas where this development will be delivered.	Potential likely significant effect. Although this policy does not specifically allocate sites for development, it does allocate a quantity of development for the Plan area over the Plan period. This policy in combination with the site allocations policies where specific locations for the development are detailed, has the potential to cause a likely significant effect on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy H2: Strategic Locations / Allocations 2021 – 2039	The policy sets out that the following strategic site allocations are carried forward from the 2015 Local Plan: - A7 – Land at Shopwyke – 585 dwellings - A9 – Land at Westhampnett / North East Chichester – 500 dwellings - A14– Tangmere Strategic Development Location – 1,300 (additional 300 over previous allocation of 1,000) - A6– West of Chichester – 1,600 The policy also sets out the following new strategic site allocations:	Potential likely significant effects. This policy allocates specific sites for development and quantifies of development within those sites. There is the potential this development may have impacts on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.

Policy	Brief Summary	Screening Outcome
	- A11– Land at Highgrove Farm, Bosham – 245 (an additional 245 to the 50 allocated in the Site Allocation DPD 2014 -2029 (total of 295)) - A8Land East of Chichester – 680 dwellings - A10– Land at Maudlin Farm, Westhampnett – 265 dwellings - A4 & A5 – Southern Gateway – 180 dwellings The policy sets out the Broad Location for Development (BLD) as follows: - A13 Southbourne Broad Location for Development – 1050 dwellings The policy also sets out housing numbers for where neighbourhood plans are anticipated for be prepared: - A2 Chichester City - 270 - A12 – Nutbourne and Hambrook – 300 dwellings (Chidham and Hambrook Parish) - A15 – Loxwood – 220 dwellings	
Policy H3: Non-Strategic Parish Housing Requirements 2021 – 2039	This policy sets out where small scale housing sites would be required to meet the needs of local communities. A total of 310 dwellings are allocated for small scale housing sites in the following parishes: - Boxgrove – 50 dwellings - Fishbourne – 30 dwellings - Kirdford – 50 dwellings - North Mundham – 50 dwellings - Plaistow and Iford – 25 dwellings - Westbourne – 30 dwellings - Wisborough Green – 75 dwellings	Potential likely significant effects. This policy allocates parishes for development and quantifies of development within those parishes. There is the potential this development may have impacts on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy H4: Affordable Housing	This policy sets out the requirement for affordable housing with a development. There are development management criteria within the policy to ensure appropriate levels of affordable housing or provision of financial contribution to provide affordable housing as well as tenure splits and sub-division of sites..	No likely significant effects. This is a development management policy and whether housing is affordable or not has no influence on effects on European sites. These policies do not have linking impact pathways. This policy can be screened out.

Policy	Brief Summary	Screening Outcome
Policy H5: Housing Mix	This policy sets out that the housing mix should reflect any national requirements for specialist and affordable housing and that the mix meets the local need and contributes to the diversity of housing in the local area. There are development management criteria within the policy to ensure this.	No likely significant effects. This is a development management policy and housing mix does not influence effects on European sites (as opposed to quantum or location of development). These policies do not have linking impact pathways. This policy can be screened out.
Policy H6: Custom and/or Self Build Homes	This policy sets out the requirements for custom and/or self-build homes through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. Therefore, this policy can be screened out with the proviso that any custom and/or self-build home planning application undergoes a HRA should there be potential likely significant effects.
Policy H7: Rural and First Homes Exception Sites	This policy sets out the requirements for rural and first home exception sites through a list of development management criteria	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. Therefore, this policy can be screened out with the proviso that any rural and first homes exception sites planning applications undergoes a HRA should there be potential likely significant effects.
Policy H8: Specialist Accommodation for Older People and those with Specialised Needs	This policy sets out the requirements for specialist housing sites for older people and those with specialist needs through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not These policies do not have a linking impact pathway.

Policy	Brief Summary	Screening Outcome
		Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. Therefore, this policy can be screened out with the proviso that any specialist housing sites planning applications undergoes a HRA should there be potential likely significant effects.
Policy H9: Accommodation for Agricultural, Horticultural and other Rural Workers	This policy sets out the requirements for accommodation tied to agricultural, horticultural and other rural workers through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. Therefore, this policy can be screened out with the proviso that any agricultural tied housing sites planning applications undergoes a HRA should there be potential likely significant effects.
Policy H10: Accessible and Adaptable Homes	This policy sets out the requirements for percentages of accessible and adaptable homes within developments through a list of development management criteria.	No likely significant effects. This is a development management policy and whether housing is accessible does not affect potential impacts on European sites. These policies do not have linking impact pathways. This policy can be screened out.
Policy H11: Meeting Gypsies, Travellers and Travelling Showpeoples' Needs	This policy defines that need for permanent pitches and plots for the Plan area as follows: - 124 additional permanent residential Gypsy and Traveller pitches of which 90 are required before 2029; - 34 additional pitches will be needed for those who don't meet the definition; and, - 40 additional plots for Travelling Showpeople, of which 26 are required before 2029. The rest of the policy is development management criteria to ensure that the plots are brought forward in an appropriate way.	Potential likely significant effect. Although this policy does not specifically allocate sites for gypsy and traveller development, it does allocate a quantity of this development for the Plan area over the Plan period and specifies that this development will be present within some allocated sites policies. This policy in combination with the site allocations policies where specific locations for the development are detailed, have the potential to cause a likely significant effect on European sites.

Policy	Brief Summary	Screening Outcome
		The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy H12: Intensification Sites	This policy sets out that intensification of existing traveller sites will be authorised should it meet development management criteria within other policies relating to gypsy and traveller accommodation and not lead to overcrowding. The policy lists a number of sites: • Land at Cherry West – 1 pitch • Land at Lakeside Barn – 4 pitches • Tower View Nurseries– 2 pitches • Greenacre – 4 pitches • Sunrise Southbourne – 1 pitch • The Stables on Bracklesham Lane – 1 additional pitch • Five Paddocks Farm Bracklesham – 2 additional travelling showpeople plots pitches (rolling temporary consents owing to future flood risk)	Potential likely significant effect. Additional gypsy and traveller accommodation in existing sites has the potential to cause likely significant effect on European sites, dependent on location. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy H13: Accommodation for Gypsies, Travellers and Travelling Showpeople	This policy sets out the requirements for the acceptance of sites proposed for gypsies and travellers through a list of development management criteria.	No likely significant effects, but down the line HRA required. The policy sets out development management criteria for the acceptance of any planning applications for gypsy and traveller and travelling showpeople accommodations and does not allocate sites for development nor a quantum of development. Therefore, the policy itself does not present any linking impact pathways to European sites. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. Therefore, this policy can be screened out with the proviso that any gypsy and traveller and travelling showpeople accommodation planning

Policy	Brief Summary	Screening Outcome
		applications undergoes a HRA should there be potential likely significant effects.
Policy H14: Gypsy and Traveller, and Travelling Showpeople Site Design Policy	This policy sets out the requirements for the site design of gypsy and traveller sites/pitches through a list of development management criteria.	No likely significant effects. This policy is a development management policy and site design will not affect European sites. These policies do not have a linking impact pathway. This policy can be screened out
Policy P1: Design Principles	This policy sets out the requirements for high design quality on development sites through a list of development management criteria	No likely significant effects. This is a development management policy and design will not affect European sites. These policies do not have linking impact pathways. This policy can be screened out.
Policy P2: Local Character and Distinctiveness	This policy sets out requirements for developments to protect, enhance and reflect the positive characteristics and distinctiveness of the local area and contribute towards local identity. This is achieved through the inclusion of a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P3: Density	This policy sets out requirements for the appropriate level of development density and making the most efficient use of land. This is achieved through the inclusion of a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P4: Layout and Access	This policy sets out the requirements of layout and access to spaces and buildings within the development through a list of development management criteria	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P5: Spaces and Landscaping	This policy sets out the requirements of open spaces and landscaping that are required to be integrated and positively contribute to the development and the surrounding area. This is achieved through a list of development management criteria	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P6: Amenity	This policy sets out that development will not be accepted if it results in material nuisance or unacceptable impact on the amenity of an area its users, neighbouring residents and occupiers, including those of the future development or where it is liable to be detrimental to human health. This is achieved through a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.

Policy	Brief Summary	Screening Outcome
Policy P7: Alterations and Extensions	This policy sets out the criteria which ensures that any alterations and extensions approved would not cause harm to the character of the local area or result in over-intensification of use within the development.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P8 Materials and Detailing	This policy sets out the Councils expectation for materials and detailing to be utilised within developments. This is achieved through a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P9: The Historic Environment	This policy sets out requirements for the conservation and or enhancement of the historic environment when development proposals are being considered for acceptance. This is achieved through a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P10: Listed Buildings	This policy sets out requirements for acceptance of development affecting listed buildings through a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P11: Conservation Areas	This policy sets out requirements for acceptance of development affecting conservation areas through a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P12: Non-Designated Heritage Assets	This policy sets out requirements protection and/or enhancement of non-designated heritage assets through a list of development management criteria	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P13: Registered Parks and Gardens	This policy sets out the requirements for acceptance of developments which may affect parks and gardens on the national register. This is achieved through a list of development management criteria	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy P14: Green Infrastructure	This policy sets out that developments will be required to protect and enhance existing green infrastructure and will be expected to contribute towards the provision of additional green infrastructure. This is achieved through a list of development management criteria.	No likely significant effects. This policy is a development management policy. These policies do not These policies do not have a linking impact pathway. In addition, this policy is designed to protect the general ecology of the area surround the development and may protect areas for which European sites are

Policy	Brief Summary	Screening Outcome
		designed e.g linear features utilised by bats etc. However, this policy does not provide specific protection to European sites. This policy can be screened out.
Policy P15: Open Space, Sport and Recreation	This policy sets out that residential development proposals should retain, enhance, improve access and increase the quantity and quality of public open space, playing fields, sport and recreation facilities (including indoor facilities) and provide improved links to the green infrastructure network and existing rights of way. This is achieved through a list of development management criteria	No likely significant effects. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out
Policy P16: Health and Well-being	This policy sets out that new development is expected to contribute towards strong vibrant and health communities. This is achieved through a list of development management criteria.	No likely significant effects. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out
Policy P17: New and Existing Local and Community Facilities including Local Shops	This policy sets out the requirements for approval of new or improved community facilities through a list of development management criteria.	No likely significant effects. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out
Policy E1: Meeting Employment Land Needs	The policy provides for an additional 108,000 to 115,00 square metres of new floorspace for office, industrial and warehouse use. This includes the following allocation sites: Brough forward from previous plan: - Land West of Chichester – 22,000 sqm - Chichester Business Park – 92 sqm New allocations: - Land South of Bognor Road – 28,000 sqm	Potential likely significant effects. This policy allocates a quantity of development for the plan period and also contains some allocated sites for this development, therefore, there is the potential for an impact on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy E2: Employment Development	This policy sets out the requirements for the approval of retaining and expanding existing employment development and providing new employment development. This is achieved through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy, which sets out development management criteria for the requirement of approval to retain and expand existing employment development and provide new employment. This policy does not allocate land for development or a quantum of development and therefore the policy itself has no linking impact pathways and can be screened out. However, it is still a requirement for any development brought forward to comply with

Policy	Brief Summary	Screening Outcome
		Habitats Regulations and therefore, any development brought forward should undergo an assessment as to whether a project level Habitats Regulations Assessment is required.
Policy E3: Addressing Horticultural Needs	The policy states that approximately 204 ha of additional land will be required for horticultural and ancillary development over the plan period.	Potential likely significant effects. This policy provides for 204 ha of land for horticulture and ancillary development. Dependent on where this development is it could have an impact on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy E4: Horticultural Development	This policy sets out the requirements for the approval of new horticultural and ancillary development. This is achieved through a list of development management criteria	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out. This policy does not allocate land for development or a quantum of development and therefore the policy itself has no linking impact pathways and can be screened out. It is still a requirement for any development brought forward to comply with Habitats Regulations and therefore, any development brought forward should undergo an assessment as to whether a project level Habitats Regulations Assessment is required. Although Policy E4 Horticultural Development has been screened out of the HRA as not causing likely significant effect as a development management policy, it sets out the detailed requirements for applications within the HDAs to be deemed acceptable. Therefore, to ensure protection for European sites with regards to development allocated within Policy E3 Addressing Horticultural Needs, additional wording is required within Policy E4. This is discussed within the main body of the report.
Policy E5: Retail Strategy and New Development	This policy provides for 6,600 sqm of comparison and convenience goods retail floorspace and food/beverage uses. This is achieved through a list of development management criteria	Potential likely significant effects.

Policy	Brief Summary	Screening Outcome
		This policy provides for 6,600 sqm of floorspace for retail development. Dependent on where this development is it could have an impact on European sites. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy E6: Chichester City Centre	This policy sets out the requirements for primary shopping frontages, secondary shopping frontages and the re-use of upper level floorspace. The policy also sets out that retail development outside of the primary shopping area will only be granted provided the development follows all of a list of development management criteria.	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy E7: Local Centres	This policy sets out that where and how commercial or leisure development will be permitted within local centres through a list of development management criteria	No likely significant effects. This is a development management policy. These policies do not have linking impact pathways. This policy can be screened out.
Policy E8: Built Tourist and Leisure Development	This policy sets out where and how leisure and tourist development will be permitted within the Plan area through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. The policy also provides specific protections for European designated sites, by being expected to contribute to relevant access management strategies to mitigate recreational disturbance to SPAs in accordance with Policy NE6 and NE7. Therefore, this policy can be screened out with the proviso that any tourist or leisure development planning applications undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.

Policy	Brief Summary	Screening Outcome
Policy E9: Caravan and Camping Sites	This policy sets out where and how caravan and camping development would be permitted through a list of development management policies	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. The policy also provides specific protections for European designated sites, restricting they type and occupation length should there be a requirement to avoid disturbance to sensitive ecological sites and by being expected to contribute to relevant access management strategies to mitigate recreational disturbance to SPAs, Therefore, this policy can be screened out with the proviso that any caravan and camping development planning applications undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.
Policy E10: Equestrian Development	This policy sets out where and how equestrian development will be permitted with a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. The policy also provides specific protections for European designated sites with the need for developments to comply with Policy NE5 which requires development that have the potential to cause a likely significant effect on European sites to undertake a HRA. Therefore, this policy can be screened out with the proviso that any equestrian development planning applications undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.

Policy	Brief Summary	Screening Outcome
Policy T1: Transport Infrastructure	This policy sets out that integrated transport measures will be developed to mitigate the impact of planned development on the highways network, improve highway safety and air quality, promote more sustainable travel patterns and encourage increased use of sustainable modes of travel, such as public transport, cycling and walking. This will be achieved through a list of development management criteria.	No likely significant effect, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any infrastructure development brought forward under this policy may have a linking impact pathway dependent on where the development is located. E.g. any new roads within 200m of a sensitive European site may have an impact on air quality. Therefore, this policy can be screened out with the proviso that any transport development planning applications undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.
Policy T2: Transport and Development	This policy sets out criteria for gaining planning permission of developments in relation to transport infrastructure to be provided by the development.	No likely significant effect, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on where the development is located. E.g. any new roads within 200m of a sensitive European site may have an impact on air quality. This policy states that where transport impacts of a development are likely to have a significant effect on local air quality of internationally important sites the proposal must be accompanied by an Air Quality Assessment and if adverse impacts are identified appropriate measures to prevent or mitigate impact on designated sites must be identified. Therefore, this policy can be screened out with the proviso that any transport development planning applications undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.

Policy	Brief Summary	Screening Outcome
Policy T3: Active Travel – Walking and Cycling Provision	This policy sets out how developments should promote and prioritise sustainable travel infrastructure.	No likely significant effects. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out.
Policy T4: Parking Provision	This policy sets out that proposals should provide adequate parking provision as well as safe an secure cycle parking	No likely significant effects. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out
Policy I1: Infrastructure Provision	This policy sets out the of infrastructure to be provided to ensure that individual and cumulative development is supported by the timely provision of adequate infrastructure, facilities and services.	No likely significant effects. This policy is a development management policy. These policies do not have a linking impact pathway. This policy can be screened out
Policy A1: Chichester City Development Principles	This policy sets out that new development, infrastructure and facilities will be planned for Chichester City that enhance the city's role as a sub-regional centre and visitor destination, contribute to meeting local needs, and conserve and enhance the city's historic character and heritage. This is achieved with a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. This policy does not allocate land for development or a quantum of development and therefore the policy itself has no linking impact pathways and can be screened out. However, it is still a requirement for any development brought forward to comply with Habitats Regulations and therefore, any development brought forward should undergo an assessment as to whether a project level Habitats Regulations Assessment is required.
Policy A2: Chichester City – Strategic Housing Location	This policy sets out that land will be allocated within the revised Chichester Neighbourhood Plan for a minimum of 270 dwellings, supporting facilities and infrastructure.	Potential likely significant effects. This policy allocates a quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.

Policy	Brief Summary	Screening Outcome
Policy A3: Southern Gateway Development Principles	This policy relates to development within the southern gateway regeneration area and complying to a list of development management criteria	No likely significant effects, but down the line HRA required. This policy is a development management policy. This policy does not allocate land for development or a quantum of development and therefore the policy itself has no linking impact pathways and can be screened out. However, it is still a requirement for any development brought forward to comply with Habitats Regulations and therefore, any development brought forward should undergo an assessment as to whether a project level Habitats Regulations Assessment is required.
Policy A4: Southern Gateway – Bus Station, Bus Depot and Basing Road Car Park	This policy allocates a 1.3 ha sites for a residential led scheme of 110 dwellings, and retail such as café/restaurants and potential inclusion of student and older persons accommodation. The rest of the policy lists development management criteria.	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection to the Chichester Harbour SAC/SPA/Ramsar site by stating development must avoid and where relevant mitigate potential impacts.
Policy A5: Southern Gateway – Police Field, Kingsham Road	This policy allocates a 1.45 ha site for residential use of 70 dwellings. The rest of the policy lists development management criteria.	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged.

Policy	Brief Summary	Screening Outcome
		The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection to the Chichester and Langstone Harbours SAC/SPA/Ramsar site by stating development must avoid and where relevant mitigate potential impacts.
Policy A6: Land West of Chichester	Development comprises: - 1,600 dwellings - 6 ha of employment land - Neighbourhood centre, community hub, local shops, community centre, small offices and a primary school - Open space and green infrastructure including country parks, playing pitches, sports pavilion and allotments. The development should - Deliver measurable net gain to biodiversity in accordance with Policy NE5 - Provide appropriate landscaping buffers and contribute to green infrastructure - Achieve nutrient neutrality and mitigate potential impacts on Chichester Harbour SAC/SPA/Ramsar - Protect and enhance existing biodiversity and important ecological corridors between Chichester Harbour and South Downs National Park. - Demonstrate capacity of sewer network to accommodate conveyance and treatment of wastewater to strict environmental standards from the proposed development. Occupation of development will be phased to align with delivery of wastewater infrastructure and neighbourhood centre and country park.	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection development management criteria for European sites.
Policy A7: Land at Shopwyke (Oving Parish)	Development comprises: - Approximately 585 dwellings - At least 4 ha of employment land - Neighbourhood centre, community hub, local shops and community centre - Open space and green infrastructure with enhancement of the existing lakes to deliver biodiversity net gains and safer access.	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey

Policy	Brief Summary	Screening Outcome
	The development should: - Provide green infrastructure in conjunction with other strategic sites - Demonstrate that the development would not have adverse impact on nature conservation interests of identified sites and habitats - Have special regard for the need to mitigate potential impacts on Chichester Harbour and contribute to any strategic access management. - Occupation of the development should be phased to align with delivery of adequate wastewater services	to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection development management criteria for European sites.
Policy A8: Land East of Chichester	Development comprises: - 680 dwellings - Specialist accommodation for older persons - Neighbourhood centre incorporating local shops, community centre, flexible employment space, small scale leisure uses - One form primary school with provision for early years/childcare and special educational needs and disability - 10 plots for self/custom build housing - 9 gypsy and traveller pitches The development should: - Provide for appropriate hard and soft landscaping, including street trees, significant buffer planting to the strategic wildlife corridor on the eastern boundary of the site, and protect existing landscape features which are worthy of retention, in order to ensure the development is well integrated with its surroundings and successfully mitigates the impacts on the wider landscape character; The buffer to the corridor should ensure darkness and minimise disturbance in the wildlife corridor and ensure habitats and microclimates of the corridor continue to support a wide range of species and maintain connectivity; - Ensure that green infrastructure provision is well related to the overall layout and character of the development and how it relates to its surroundings. This will include creating linkages throughout the site to the wider countryside, Tangmere and development at Shopwyke Lakes;	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.

Policy	Brief Summary	Screening Outcome
	- Ensure that the design and layout avoids harm to protected species and existing important habitats features within, and in the vicinity of, the site, and facilitates the achievement of biodiversity net gain and facilitates the creation of high levels of habitat connectivity within the site and to the adjacent strategic wildlife corridor and wider Green Infrastructure network. Appropriate buffers, of sufficient width and landscaping design to reduce light levels down to 0.2 lux in the horizontal plane and 0.4 lux in the vertical plane, will be required to the strategic wildlife corridor, that includes the lake/water body, to reinforce its functionality and to include mitigation measures to minimise noise to reduce disturbance from the development. Buffers may contain appropriate unlit uses such as recreational use and SUDS provision - Avoid and where relevant mitigate potential impacts on the Chichester Harbour SAC/SPA/Ramsar, including contributing to any strategic access management issues (including on-site mitigation where required as part of the Habitats Regulations Assessment), and potential for loss of functionally linked supporting habitat;	
Policy A9: Land at Westhampnett / North East Chichester	Development comprises: - 500 dwellings - Community facilities - Open space and green infrastructure, including sensitively planned linear greenspace with public access along the Lavant Valley The development should: - Make provision for green links to the South Downs National Park and Chichester City - Be occupied in a phased manor to align with the delivery of adequate wastewater infrastructure.	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report..
Policy A10: Land at Maudlin Farm	This policy allocates Maudlin Farm for 265 dwellings, 3 serviced gypsy and traveller pitches and 4 serviced self/custom build plots. The development should: - Retain mature trees and hedgerows where possible	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey

Policy	Brief Summary	Screening Outcome
	- Compensate unavoidable habitat loss through new native planting elsewhere on site - Avoid harm to protected species and existing habitats within an in the vicinity of the site - Provide the required level of biodiversity net gain - Facilitate creation of high levels of habitat connectivity within site and to wider green infrastructure network - Avoid and where relevant mitigate potential impacts on Chichester and Langstone Harbours SAC/SPA/Ramsar and Singleton and Cocking Tunnels SAC	to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection development management criteria for European sites.
Policy A11: Highgrove Farm, Bosham	This policy allocates a site of 13 ha at Highgrove Farm for residential led development. a minimum of 245 dwellings, specialist accommodation for older persons, community buildings, public open space and play area, 4 services plots for self/custom build and 3 gypsy and traveller pitches. The development should: - Provide multifunctional green infrastructure - Avoid harm to protected species and existing habitats within an in the vicinity of the site - Provide the required level of biodiversity net gain - Provide habitat connectivity within site and to wider green infrastructure network - Avoid and where relevant mitigate potential impacts on Chichester and Langstone Harbours SAC/SPA/Ramsar	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection development management criteria for European sites.
Policy A12: Chidham and Hambrook	This policy sets out that land will be allocated within the revised Chidham and Hambrook Neighbourhood Plan for 300 dwellings and supporting facilities and infrastructure. The development should: - Avoid harm to protected species and existing habitats within an in the vicinity of the site - Provide the required level of biodiversity net gain - Provide habitat connectivity within site and to wider green infrastructure network and strategic wildlife corridors	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged.

Policy	Brief Summary	Screening Outcome
	- Provide appropriate buffers in relation to important habitats being retained or created - Avoid and where relevant mitigate potential impacts on Chichester and Langstone Harbours SAC/SPA/Ramsar	The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protection development management criteria for European sites.
Policy A13: Southbourne Broad Location for Development	This policy sets out that land will be allocated in the Broad Location for Development at Southbourne for 1,050 dwellings including 16 serviced self/custom build plots, accommodation for older people, local employment opportunities, supporting community uses and facilities. Also provision for 12 gypsy and traveller pitches, 12 pitches for travelling showpeople. The development should: - Provide multifunctional green infrastructure - Demonstrate that development would not have an adverse impact on the nature conservation interest of identified sites and habitats including the Strategic Wildlife Corridors - Avoid and where relevant mitigate potential impacts on Chichester and Langstone Harbours SAC/SPA/Ramsar - Ensure sufficient capacity within the relevant wastewater treatment infrastructure before the delivery of development	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does also provide specific protective development management criteria for European sites.
Policy A14: Land West of Tangmere	This policy allocates a site of 73 ha for a residential led development of at least 1,300 dwellings, community facilities and open space. As well as a two form entry primary school, allotments and community orchard. The development should: - Make provision for green links and integrated green infrastructure - Phase delivery to align with adequate waste conveyance and treatment to meet strict environmental standards.	Potential likely significant effects. This policy allocates a specific site and quantum of dwellings for development. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does not provide specific protective development management criteria for European sites.

Policy	Brief Summary	Screening Outcome
Policy A15: Loxwood	This policy sets out that land will be allocated for development within the revised Loxwood Neighbourhood Plan for at least 220 dwellings, supporting facilities and infrastructure. The development should: - Avoid harm to protected species and existing habitats within an in the vicinity of the site - Provide the required level of biodiversity net gain - Provide habitat connectivity within site and to wider green infrastructure network and strategic wildlife corridors - Provide appropriate buffers in relation to important habitats being retained or created	Potential likely significant effects. This policy sets out a broad location for development and provides a quantum of dwellings for development within the Loxwood Parish. There is potential for the increase in dwellings to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report. The policy does not provide specific protective development management criteria for European sites. However, the supporting text does mention that all impacts to bats from the Mens SAC must be considered as the habitats are critical for sustaining populations of bats within the SAC.
Policy A16: Goodwood Motor Circuit and Airfield	This policy sets out where and how proposals for outdoor sport, recreation and leisure activities in connection with or ancillary to the existing uses at Goodwood Motor Circuit and Airfield would be accepted, through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on the nature of the development, given that it is in close proximity to European sites. Therefore, this policy can be screened out with the proviso that any development planning application undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.
Policy A17: Development within the Vicinity of Goodwood Motor Circuit and Airfield	This policy sets out how planning will be granted with regards to noise impacts in the vicinity of Goodwood Motor Circuit and Airfield by requiring a noise impact assessment and through a list of development management criteria.	No likely significant effects, but down the line HRA required. This policy is a development management policy ensuring that there are noise impact assessments present at submission for noise sensitive developments within the vicinity of Goodwood.

Policy	Brief Summary	Screening Outcome
		This policy does not allocate land for development or a quantum of development and therefore the policy itself has no linking impact pathways and can be screened out. However, it is still a requirement for any development brought forward to comply with Habitats Regulations and therefore, any development brought forward should undergo an assessment as to whether a project level Habitats Regulations Assessment is required.
Policy A18: Thorney Island	This policy sets out that proposals for new development on the island which help to enhance or sustain its operational military capability will be supported. However, it should seek to enhance the overall character of the island and avoid adverse impacts on Chichester Harbour AONB/SAC/SPA/Ramsar	No likely significant effects, but down the line HRA required. This policy is a development management policy. These policies do not have a linking impact pathway. Although the policy does not present a linking impact pathway, any development bought forward under this policy may have a linking impact pathway dependent on the nature of the development, given that it is in close proximity to European sites. The policy also states that it must avoid adverse impacts on Chichester Harbour SAC/SPA/Ramsar. Therefore, this policy can be screened out with the proviso that any development planning application undergoes a HRA should there be potential likely significant effects, which will ensure that the appropriate mitigation is in place, should there be an impact.
Policy A19: Land at Chichester Business Park, Tangmere	This policy allocates land of 2.7 ha for employment development.	Potential likely significant effects. This policy allocates a specific site for employment land for development. There is potential for the increase in employment land in use to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.

Policy	Brief Summary	Screening Outcome
Policy A20: Land South of Bognor Road	This policy allocates 19,5 ha of land for employment led development. with at least 28,000 sqm of employment floor space and 5 plots for travelling showpeople and 1 ha of ancillary storage requirements. The development should: - Protect and retain existing landscape features including hedgerows and enhance with supplementary planting - Avoid harm to protected species and existing habitats within an in the vicinity of the site - Provide the required level of biodiversity net gain - Provide habitat connectivity within site and to wider green infrastructure network and strategic wildlife corridors - Provide appropriate buffers in relation to important habitats being retained or created	Potential likely significant effects. This policy allocates a specific site and quantum of employment land for development. There is potential for the increase in employment land in use to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.
Policy A21: Land East of Rolls Royce	This policy regards safeguarding employment land. 10 ha of land has been safeguarded for Rolls Royce related development on the eastern side of the existing Rolls Royce Cars manufacturing plant. The development should: - Ensure increase traffic generation is minimised and mitigated by the use of sustainable transport measures - Avoid and then mitigate and adverse impacts on the landscape and the setting of the South Downs National Park	Potential likely significant effects. This policy allocates a specific site and quantum of employment land for development. There is potential for the increase in employment land in use to have an impact on European sites within and outside of the Plan area where Zones of Impact of the European sites bisect the development, journey to work routes or where wastewater from the development is discharged. The implications of this and other policies with potential likely significant effects will collectively be discussed further within the body of the report.

Appendix B Air Quality Results

B.1 Total Nitrogen Deposition Results

Table 20. Total nitrogen deposition rates for the Local Plan in isolation and in combination with other plans and projects

Note: Numbers in **Bold** are above the relevant critical loads/levels.

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
CLSM1_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	20	**20.92**	17.63	18.66	**20.92**	18.57	18.66
CLSM1_2		20	**20.46**	17.24	18.21	**20.46**	18.13	18.21
CLSM1_3		20	19.86	16.72	17.63	19.86	17.55	17.63
CLSM1_4		20	19.05	16.01	16.83	19.05	16.76	16.83
CLSM1_5		20	18.39	15.45	16.20	18.39	16.14	16.20
CLSM1_6		20	17.85	14.99	15.68	17.85	15.63	15.68
CLSM1_7		20	17.39	14.61	15.25	17.39	15.20	15.25
CLSM1_8		20	15.89	13.35	13.82	15.89	13.79	13.82
CLSM1_9		20	15.03	12.64	13.03	15.03	13.00	13.03
CLSM1_10		20	14.47	12.19	12.51	14.47	12.49	12.51
CLSM1_11		20	14.08	11.87	12.14	14.08	12.13	12.14
CLSM1_12		20	13.78	11.63	11.87	13.78	11.86	11.87
CLSM1_13		20	13.55	11.44	11.66	13.55	11.65	11.66
CLSM1_14		20	13.37	11.29	11.49	13.37	11.48	11.49
KGVE1	Kingley Vale (SAC)	10	**30.53**	**25.95**	**26.14**	**30.53**	**26.12**	**26.14**
KGVE2		10	**30.53**	**25.95**	**26.14**	**30.53**	**26.11**	**26.14**
KGVE3		10	**30.52**	**25.95**	**26.13**	**30.52**	**26.10**	**26.13**
KGVE4		10	**30.52**	**25.94**	**26.11**	**30.52**	**26.09**	**26.11**
KGVE5		10	**30.51**	**25.93**	**26.11**	**30.51**	**26.08**	**26.11**
KGVE6		10	**30.50**	**25.93**	**26.09**	**30.50**	**26.07**	**26.09**
KGVE7		10	**30.49**	**25.92**	**26.08**	**30.49**	**26.06**	**26.08**
KGVE8		10	**30.46**	**25.89**	**26.04**	**30.46**	**26.03**	**26.04**

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
KGVE9		10	**30.43**	**25.88**	**26.01**	**30.43**	**26.00**	**26.01**
KGVE10		10	**30.41**	**25.86**	**25.98**	**30.41**	**25.97**	**25.98**
KGVE11		10	**30.40**	**25.85**	**25.96**	**30.40**	**25.95**	**25.96**
KGVE12		10	**30.39**	**25.84**	**25.94**	**30.39**	**25.93**	**25.94**
KGVE13		10	**30.38**	**25.83**	**25.93**	**30.38**	**25.92**	**25.93**
KGVE14		10	**30.37**	**25.83**	**25.92**	**30.37**	**25.91**	**25.92**
PGHR1_1	Pagham Habour (SPA)	20	16.77	14.59	18.05	16.77	17.16	18.05
PGHR1_2		20	15.90	13.78	16.86	15.90	16.07	16.86
PGHR1_3		20	15.05	13.01	15.69	15.05	15.00	15.69
PGHR1_4		20	14.07	12.12	14.38	14.07	13.80	14.38
PGHR1_5		20	13.37	11.49	13.45	13.37	12.94	13.45
PGHR1_6		20	12.82	11.00	12.71	12.82	12.27	12.71
PGHR1_7		20	12.38	10.61	12.14	12.38	11.75	12.14
PGHR1_8		20	11.03	9.43	10.40	11.03	10.15	10.40
PGHR1_9		20	10.37	8.85	9.54	10.37	9.37	9.54
PGHR1_10		20	10.00	8.53	9.06	10.00	8.92	9.06
PGHR1_11		20	9.77	8.33	8.75	9.77	8.63	8.75
PGHR1_12		20	9.60	8.18	8.53	9.60	8.44	8.53
PGHR1_13		20	9.48	8.07	8.38	9.48	8.30	8.38
PGHR1_14		20	9.39	8.00	8.27	9.39	8.20	8.27
DNBG1	Duncton to Bignor Escarpment (SAC)	10	**32.23**	**27.29**	**30.17**	**32.23**	**29.83**	**30.17**
DNBG2		10	**32.01**	**27.11**	**29.80**	**32.01**	**29.48**	**29.80**
DNBG3		10	**31.74**	**26.90**	**29.36**	**31.74**	**29.07**	**29.36**
DNBG4		10	**31.41**	**26.63**	**28.78**	**31.41**	**28.53**	**28.78**
DNBG5		10	**31.15**	**26.42**	**28.34**	**31.15**	**28.12**	**28.34**
DNBG6		10	**30.95**	**26.25**	**27.99**	**30.95**	**27.78**	**27.99**
DNBG7		10	**30.77**	**26.12**	**27.70**	**30.77**	**27.51**	**27.70**
DNBG8		10	**30.23**	**25.68**	**26.77**	**30.23**	**26.64**	**26.77**
DNBG9		10	**29.94**	**25.45**	**26.27**	**29.94**	**26.17**	**26.27**
DNBG10		10	**29.76**	**25.31**	**25.97**	**29.76**	**25.89**	**25.97**

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
DNBG11		10	**29.65**	**25.22**	**25.77**	**29.65**	**25.70**	**25.77**
DNBG12		10	**29.58**	**25.16**	**25.63**	**29.58**	**25.58**	**25.63**
DNBG13		10	**29.52**	**25.11**	**25.53**	**29.52**	**25.48**	**25.53**
DNBG14		10	**29.48**	**25.08**	**25.46**	**29.48**	**25.41**	**25.46**
SACT1	Singleton and Cocking Tunnels (SAC)	10	**30.99**	**26.34**	**26.65**	**30.99**	**26.60**	**26.65**
SACT2		10	**30.99**	**26.34**	**26.64**	**30.99**	**26.59**	**26.64**
SACT3		10	**30.98**	**26.33**	**26.63**	**30.98**	**26.58**	**26.63**
SACT4		10	**30.96**	**26.32**	**26.61**	**30.96**	**26.56**	**26.61**
SACT5		10	**30.95**	**26.31**	**26.60**	**30.95**	**26.55**	**26.60**
SACT6		10	**30.94**	**26.30**	**26.58**	**30.94**	**26.53**	**26.58**
SACT7		10	**30.93**	**26.29**	**26.57**	**30.93**	**26.52**	**26.57**
CLSM2_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	20	11.83	10.07	10.20	11.83	10.17	10.20
CLSM2_2		20	11.83	10.07	10.19	11.83	10.17	10.19
CLSM2_3		20	11.82	10.06	10.19	11.82	10.17	10.19
CLSM2_4		20	11.82	10.06	10.18	11.82	10.16	10.18
CLSM2_5		20	11.81	10.05	10.17	11.81	10.15	10.17
CLSM2_6		20	11.81	10.05	10.17	11.81	10.15	10.17
CLSM2_7		20	11.80	10.05	10.16	11.80	10.14	10.16
CLSM2_8		20	11.78	10.03	10.13	11.78	10.12	10.13
CLSM2_9		20	11.77	10.01	10.11	11.77	10.10	10.11
CLSM2_10		20	11.76	10.00	10.09	11.76	10.08	10.09
CLSM2_11		20	11.74	9.99	10.08	11.74	10.07	10.08
CLSM2_12		20	11.73	9.99	10.06	11.73	10.06	10.06
CLSM2_13		20	11.73	9.98	10.05	11.73	10.05	10.05
CLSM2_14		20	11.72	9.97	10.04	11.72	10.04	10.04
SOME1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	20	14.59	12.48	14.00	14.59	13.52	14.00
SOME2		20	14.32	12.24	13.62	14.32	13.19	13.62
SOME3		20	14.00	11.96	13.16	14.00	12.79	13.16
SOME4		20	13.61	11.61	12.61	13.61	12.30	12.61
SOME5		20	13.32	11.36	12.21	13.32	11.94	12.21

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
SOME6		20	13.11	11.17	11.90	13.11	11.68	11.90
SOME7		20	12.94	11.03	11.67	12.94	11.47	11.67
SOME8		20	12.47	10.62	11.02	12.47	10.90	11.02
SOME9		20	12.26	10.44	10.72	12.26	10.64	10.72
SOME10		20	12.14	10.33	10.56	12.14	10.49	10.56
SOME11		20	12.06	10.27	10.45	12.06	10.40	10.45
SOME12		20	12.01	10.22	10.38	12.01	10.34	10.38
SOME13		20	11.97	10.19	10.32	11.97	10.29	10.32
SOME14		20	11.94	10.16	10.28	11.94	10.25	10.28
CLSM3_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	20	14.18	12.02	13.24	14.18	12.92	13.24
CLSM3_2		20	14.01	11.87	13.01	14.01	12.72	13.01
CLSM3_3		20	13.78	11.67	12.71	13.78	12.46	12.71
CLSM3_4		20	13.47	11.42	12.32	13.47	12.12	12.32
CLSM3_5		20	13.24	11.22	12.02	13.24	11.86	12.02
CLSM3_6		20	13.06	11.07	11.78	13.06	11.65	11.78
CLSM3_7		20	12.91	10.94	11.58	12.91	11.48	11.58
CLSM3_8		20	12.44	10.55	10.99	12.44	10.94	10.99
CLSM3_9		20	12.20	10.35	10.68	12.20	10.66	10.68
CLSM3_10		20	12.06	10.23	10.50	12.06	10.49	10.50
CLSM3_11		20	11.96	10.15	10.38	11.96	10.37	10.38
CLSM3_12		20	11.89	10.09	10.29	11.89	10.29	10.29
CLSM3_13		20	11.83	10.05	10.22	11.83	10.22	10.22
CLSM3_14		20	11.79	10.01	10.17	11.79	10.17	10.17
SLDR1	Portsmouth Harbour (under Solent & Dorset Coast in GIS) (SPA)	20	**20.65**	17.45	18.54	**20.65**	18.44	18.54
SLDR2		20	**20.27**	17.11	18.15	**20.27**	18.05	18.15
SLDR3		20	19.75	16.66	17.63	19.75	17.54	17.63
SLDR4		20	19.03	16.04	16.91	19.03	16.82	16.91
SLDR5		20	18.44	15.53	16.31	18.44	16.24	16.31
SLDR6		20	17.94	15.10	15.82	17.94	15.75	15.82
SLDR7		20	17.51	14.74	15.41	17.51	15.34	15.41

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
SLDR8		20	16.07	13.54	14.01	16.07	13.97	14.01
SLDR9		20	15.24	12.85	13.22	15.24	13.19	13.22
SLDR10		20	14.70	12.41	12.71	14.70	12.68	12.71
BSHL1	Buster Hill (SAC)	5	**78.85**	**62.65**	**71.01**	**78.85**	**70.84**	**71.01**
BSHL2		5	**76.99**	**61.17**	**69.23**	**76.99**	**69.06**	**69.23**
BSHL3		5	**74.49**	**59.18**	**66.83**	**74.49**	**66.67**	**66.83**
BSHL4		5	**70.91**	**56.32**	**63.38**	**70.91**	**63.23**	**63.38**
BSHL5		5	**67.89**	**53.90**	**60.47**	**67.89**	**60.33**	**60.47**
BSHL6		5	**65.32**	**51.84**	**57.99**	**65.32**	**57.86**	**57.99**
BSHL7		5	**63.10**	**50.06**	**55.85**	**63.10**	**55.73**	**55.85**
BSHL8		5	**55.14**	**43.71**	**48.17**	**55.14**	**48.08**	**48.17**
BSHL9		5	**50.22**	**39.87**	**43.47**	**50.22**	**43.39**	**43.47**
BSHL10		5	**46.84**	**37.30**	**40.30**	**46.84**	**40.24**	**40.30**
BSHL11		5	**44.37**	**35.47**	**38.02**	**44.37**	**37.97**	**38.02**
BSHL12		5	**42.48**	**34.09**	**36.31**	**42.48**	**36.27**	**36.31**
BSHL13		5	**41.00**	**33.04**	**34.98**	**41.00**	**34.94**	**34.98**
BSHL14		5	**39.81**	**32.21**	**33.92**	**39.81**	**33.88**	**33.92**
PGHR2_1	Pagham Habour (SPA)	20	15.68	13.57	16.50	15.68	15.75	16.50
PGHR2_2		20	14.71	12.69	15.21	14.71	14.55	15.21
PGHR2_3		20	13.86	11.92	14.08	13.86	13.52	14.08
PGHR2_4		20	12.91	11.08	12.83	12.91	12.38	12.83
PGHR2_5		20	12.27	10.51	11.99	12.27	11.60	11.99
PGHR2_6		20	11.78	10.08	11.36	11.78	11.02	11.36
PGHR2_7		20	11.41	9.76	10.87	11.41	10.58	10.87
PGHR2_8		20	10.34	8.82	9.49	10.34	9.32	9.49
PGHR2_9		20	9.86	8.40	8.87	9.86	8.75	8.87
PGHR2_10		20	9.59	8.17	8.53	9.59	8.43	8.53
PGHR2_11		20	9.42	8.02	8.31	9.42	8.23	8.31
PGHR2_12		20	9.30	7.92	8.16	9.30	8.10	8.16
PGHR2_13		20	9.22	7.85	8.05	9.22	8.00	8.05

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
PGHR2_14		20	9.15	7.80	7.97	9.15	7.92	7.97
MENS1_1	The Mens (SAC)	10	**27.95**	**23.72**	**25.61**	**27.95**	**25.46**	**25.61**
MENS1_2		10	**27.82**	**23.61**	**25.35**	**27.82**	**25.20**	**25.35**
MENS1_3		10	**27.66**	**23.48**	**25.03**	**27.66**	**24.90**	**25.03**
MENS1_4		10	**27.46**	**23.32**	**24.64**	**27.46**	**24.53**	**24.64**
MENS1_5		10	**27.32**	**23.21**	**24.35**	**27.32**	**24.26**	**24.35**
MENS1_6		10	**27.21**	**23.12**	**24.13**	**27.21**	**24.04**	**24.13**
MENS1_7		10	**27.12**	**23.05**	**23.96**	**27.12**	**23.88**	**23.96**
MENS1_8		10	**26.87**	**22.84**	**23.45**	**26.87**	**23.40**	**23.45**
MENS1_9		10	**26.74**	**22.75**	**23.20**	**26.74**	**23.16**	**23.20**
MENS1_10		10	**26.67**	**22.69**	**23.05**	**26.67**	**23.02**	**23.05**
MENS1_11		10	**26.62**	**22.65**	**22.96**	**26.62**	**22.93**	**22.96**
MENS1_12		10	**26.59**	**22.62**	**22.89**	**26.59**	**22.87**	**22.89**
MENS1_13		10	**26.56**	**22.60**	**22.84**	**26.56**	**22.82**	**22.84**
MENS1_14		10	**26.54**	**22.58**	**22.80**	**26.54**	**22.78**	**22.80**
MENS2_1	The Mens (SAC)	10	**27.89**	**23.67**	**25.49**	**27.89**	**25.34**	**25.49**
MENS2_2		10	**27.76**	**23.56**	**25.22**	**27.76**	**25.08**	**25.22**
MENS2_3		10	**27.60**	**23.43**	**24.91**	**27.60**	**24.78**	**24.91**
MENS2_4		10	**27.41**	**23.27**	**24.52**	**27.41**	**24.41**	**24.52**
MENS2_5		10	**27.26**	**23.16**	**24.23**	**27.26**	**24.14**	**24.23**
MENS2_6		10	**27.15**	**23.07**	**24.01**	**27.15**	**23.94**	**24.01**
MENS2_7		10	**27.06**	**23.00**	**23.84**	**27.06**	**23.77**	**23.84**
MENS2_8		10	**26.81**	**22.80**	**23.33**	**26.81**	**23.29**	**23.33**
MENS2_9		10	**26.69**	**22.70**	**23.09**	**26.69**	**23.06**	**23.09**
MENS2_10		10	**26.62**	**22.65**	**22.96**	**26.62**	**22.93**	**22.96**
MENS2_11		10	**26.58**	**22.61**	**22.87**	**26.58**	**22.85**	**22.87**
MENS2_12		10	**26.54**	**22.59**	**22.81**	**26.54**	**22.79**	**22.81**
MENS2_13		10	**26.52**	**22.57**	**22.76**	**26.52**	**22.75**	**22.76**
MENS2_14		10	**26.51**	**22.56**	**22.73**	**26.51**	**22.71**	**22.73**
EBCM1	Ebernoe Common (SAC)	10	**31.31**	**26.34**	**27.91**	**31.31**	**28.08**	**27.91**

Receptor	Designated Site	Critical Load	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
EBCM2		10	**30.68**	**25.84**	**27.25**	**30.68**	**27.39**	**27.25**
EBCM3		10	**30.22**	**25.48**	**26.71**	**30.22**	**26.84**	**26.71**
EBCM4		10	**29.71**	**25.08**	**26.12**	**29.71**	**26.23**	**26.12**
EBCM5		10	**29.35**	**24.80**	**25.73**	**29.35**	**25.82**	**25.73**
EBCM6		10	**29.09**	**24.59**	**25.43**	**29.09**	**25.51**	**25.43**
EBCM7		10	**28.88**	**24.43**	**25.19**	**28.88**	**25.26**	**25.19**
EBCM8		10	**28.20**	**23.89**	**24.40**	**28.20**	**24.45**	**24.40**
EBCM9		10	**27.82**	**23.61**	**23.98**	**27.82**	**24.02**	**23.98**
EBCM10		10	**27.59**	**23.43**	**23.73**	**27.59**	**23.76**	**23.73**
EBCM11		10	**27.45**	**23.31**	**23.56**	**27.45**	**23.58**	**23.56**
EBCM12		10	**27.34**	**23.23**	**23.45**	**27.34**	**23.47**	**23.45**
EBCM13		10	**27.26**	**23.16**	**23.36**	**27.26**	**23.38**	**23.36**
EBCM14		10	**27.19**	**23.12**	**23.30**	**27.19**	**23.31**	**23.30**

B.2 Total Ammonia Concentration Results

Table 21. Total ammonia concentration rates for the Local Plan in isolation and in combination with other plans and projects

Note: Numbers in **Bold** are above the relevant critical loads/levels.

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
CLSM1_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	3	0.96	1.41	1.43	0.96	1.24	1.43
CLSM1_2		3	0.91	1.34	1.36	0.91	1.17	1.36
CLSM1_3		3	0.84	1.25	1.26	0.84	1.09	1.26
CLSM1_4		3	0.76	1.12	1.13	0.76	0.98	1.13
CLSM1_5		3	0.69	1.02	1.03	0.69	0.89	1.03
CLSM1_6		3	0.63	0.94	0.95	0.63	0.82	0.95

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
CLSM1_7		3	0.58	0.87	0.88	0.58	0.76	0.88
CLSM1_8		3	0.43	0.64	0.65	0.43	0.56	0.65
CLSM1_9		3	0.34	0.51	0.52	0.34	0.45	0.52
CLSM1_10		3	0.29	0.43	0.43	0.29	0.37	0.43
CLSM1_11		3	0.25	0.37	0.37	0.25	0.32	0.37
CLSM1_12		3	0.22	0.33	0.33	0.22	0.28	0.33
CLSM1_13		3	0.20	0.29	0.30	0.20	0.25	0.30
CLSM1_14		3	0.18	0.27	0.27	0.18	0.23	0.27
KGVE1	Kingley Vale (SAC)	1	0.02	0.04	0.04	0.02	0.03	0.04
KGVE2		1	0.02	0.04	0.04	0.02	0.03	0.04
KGVE3		1	0.02	0.04	0.04	0.02	0.03	0.04
KGVE4		1	0.02	0.04	0.04	0.02	0.03	0.04
KGVE5		1	0.02	0.04	0.04	0.02	0.02	0.04
KGVE6		1	0.02	0.04	0.04	0.02	0.02	0.04
KGVE7		1	0.02	0.04	0.04	0.02	0.02	0.04
KGVE8		1	0.02	0.03	0.03	0.02	0.02	0.03
KGVE9		1	0.02	0.03	0.03	0.02	0.02	0.03
KGVE10		1	0.01	0.03	0.03	0.01	0.02	0.03
KGVE11		1	0.01	0.03	0.03	0.01	0.02	0.03
KGVE12		1	0.01	0.02	0.02	0.01	0.02	0.02
KGVE13		1	0.01	0.02	0.02	0.01	0.01	0.02
KGVE14		1	0.01	0.02	0.02	0.01	0.01	0.02
PGHR1_1	Pagham Habour (SPA)	3	0.95	1.62	1.77	0.95	1.18	1.77
PGHR1_2		3	0.84	1.44	1.57	0.84	1.05	1.57
PGHR1_3		3	0.74	1.26	1.37	0.74	0.92	1.37
PGHR1_4		3	0.62	1.06	1.16	0.62	0.77	1.16
PGHR1_5		3	0.54	0.91	1.00	0.54	0.67	1.00
PGHR1_6		3	0.47	0.80	0.88	0.47	0.59	0.88
PGHR1_7		3	0.42	0.72	0.78	0.42	0.52	0.78
PGHR1_8		3	0.27	0.45	0.49	0.27	0.33	0.49

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
PGHR1_9		3	0.19	0.32	0.35	0.19	0.23	0.35
PGHR1_10		3	0.15	0.25	0.27	0.15	0.18	0.27
PGHR1_11		3	0.12	0.20	0.22	0.12	0.15	0.22
PGHR1_12		3	0.10	0.17	0.18	0.10	0.12	0.18
PGHR1_13		3	0.09	0.14	0.16	0.09	0.11	0.16
PGHR1_14		3	0.07	0.13	0.14	0.07	0.09	0.14
DNBG1	Duncton to Bignor Escarpment (SAC)	3	0.21	0.54	0.57	0.21	0.27	0.57
DNBG2		3	0.20	0.50	0.53	0.20	0.25	0.53
DNBG3		3	0.18	0.45	0.49	0.18	0.23	0.49
DNBG4		3	0.16	0.40	0.42	0.16	0.20	0.42
DNBG5		3	0.14	0.35	0.38	0.14	0.18	0.38
DNBG6		3	0.13	0.32	0.34	0.13	0.16	0.34
DNBG7		3	0.12	0.29	0.31	0.12	0.14	0.31
DNBG8		3	0.08	0.20	0.21	0.08	0.10	0.21
DNBG9		3	0.06	0.15	0.16	0.06	0.07	0.16
DNBG10		3	0.05	0.12	0.13	0.05	0.06	0.13
DNBG11		3	0.04	0.10	0.11	0.04	0.05	0.11
DNBG12		3	0.04	0.09	0.09	0.04	0.04	0.09
DNBG13		3	0.03	0.08	0.08	0.03	0.04	0.08
DNBG14		3	0.03	0.07	0.08	0.03	0.04	0.08
SACT1	Singleton and Cocking Tunnels (SAC)	3	0.03	0.07	0.07	0.03	0.04	0.07
SACT2		3	0.03	0.07	0.07	0.03	0.04	0.07
SACT3		3	0.03	0.07	0.07	0.03	0.04	0.07
SACT4		3	0.03	0.06	0.07	0.03	0.04	0.07
SACT5		3	0.03	0.06	0.07	0.03	0.04	0.07
SACT6		3	0.03	0.06	0.07	0.03	0.04	0.07
SACT7		3	0.03	0.06	0.06	0.03	0.04	0.06
CLSM2_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	3	0.03	0.06	0.06	0.03	0.04	0.06
CLSM2_2		3	0.03	0.06	0.06	0.03	0.04	0.06
CLSM2_3		3	0.03	0.06	0.06	0.03	0.04	0.06

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
CLSM2_4		3	0.03	0.06	0.06	0.03	0.04	0.06
CLSM2_5		3	0.03	0.05	0.06	0.03	0.04	0.06
CLSM2_6		3	0.03	0.05	0.06	0.03	0.04	0.06
CLSM2_7		3	0.03	0.05	0.06	0.03	0.04	0.06
CLSM2_8		3	0.03	0.05	0.05	0.03	0.03	0.05
CLSM2_9		3	0.03	0.05	0.05	0.03	0.03	0.05
CLSM2_10		3	0.02	0.04	0.04	0.02	0.03	0.04
CLSM2_11		3	0.02	0.04	0.04	0.02	0.03	0.04
CLSM2_12		3	0.02	0.04	0.04	0.02	0.03	0.04
CLSM2_13		3	0.02	0.04	0.04	0.02	0.03	0.04
CLSM2_14		3	0.02	0.04	0.04	0.02	0.02	0.04
SOME1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	3	0.34	0.60	0.68	0.34	0.42	0.68
SOME2		3	0.31	0.54	0.62	0.31	0.38	0.62
SOME3		3	0.27	0.48	0.54	0.27	0.34	0.54
SOME4		3	0.23	0.40	0.45	0.23	0.28	0.45
SOME5		3	0.19	0.34	0.38	0.19	0.24	0.38
SOME6		3	0.17	0.29	0.33	0.17	0.21	0.33
SOME7		3	0.15	0.26	0.29	0.15	0.18	0.29
SOME8		3	0.09	0.16	0.18	0.09	0.12	0.18
SOME9		3	0.07	0.12	0.13	0.07	0.09	0.13
SOME10		3	0.06	0.10	0.11	0.06	0.07	0.11
SOME11		3	0.05	0.08	0.09	0.05	0.06	0.09
SOME12		3	0.04	0.07	0.08	0.04	0.05	0.08
SOME13		3	0.04	0.06	0.07	0.04	0.05	0.07
SOME14		3	0.03	0.06	0.06	0.03	0.04	0.06
CLSM3_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	3	0.34	0.55	0.60	0.34	0.40	0.60
CLSM3_2		3	0.32	0.52	0.57	0.32	0.38	0.57
CLSM3_3		3	0.29	0.47	0.52	0.29	0.34	0.52
CLSM3_4		3	0.26	0.42	0.45	0.26	0.30	0.45
CLSM3_5		3	0.23	0.38	0.40	0.23	0.27	0.40

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
CLSM3_6		3	0.21	0.34	0.36	0.21	0.24	0.36
CLSM3_7		3	0.19	0.31	0.33	0.19	0.22	0.33
CLSM3_8		3	0.13	0.23	0.23	0.13	0.16	0.23
CLSM3_9		3	0.11	0.18	0.18	0.11	0.13	0.18
CLSM3_10		3	0.09	0.15	0.15	0.09	0.11	0.15
CLSM3_11		3	0.08	0.13	0.13	0.08	0.09	0.13
CLSM3_12		3	0.07	0.12	0.12	0.07	0.09	0.12
CLSM3_13		3	0.06	0.11	0.11	0.06	0.08	0.11
CLSM3_14		3	0.06	0.10	0.10	0.06	0.07	0.10
SLDR1	Portsmouth Harbour (under Solent & Dorset Coast in GIS) (SPA)	3	0.86	1.30	1.32	0.86	1.11	1.32
SLDR2		3	0.82	1.24	1.26	0.82	1.06	1.26
SLDR3		3	0.76	1.16	1.17	0.76	0.99	1.17
SLDR4		3	0.69	1.04	1.05	0.69	0.89	1.05
SLDR5		3	0.62	0.94	0.96	0.62	0.81	0.96
SLDR6		3	0.57	0.86	0.88	0.57	0.74	0.88
SLDR7		3	0.53	0.80	0.81	0.53	0.68	0.81
SLDR8		3	0.38	0.57	0.58	0.38	0.49	0.58
SLDR9		3	0.30	0.45	0.45	0.30	0.38	0.45
SLDR10		3	0.24	0.36	0.37	0.24	0.31	0.37
BSHL1	Buster Hill (SAC)	1	**2.01**	**3.07**	**3.08**	**2.01**	**2.65**	**3.08**
BSHL2		1	**1.92**	**2.93**	**2.94**	**1.92**	**2.53**	**2.94**
BSHL3		1	**1.80**	**2.75**	**2.76**	**1.80**	**2.37**	**2.76**
BSHL4		1	**1.63**	**2.49**	**2.50**	**1.63**	**2.15**	**2.50**
BSHL5		1	**1.49**	**2.27**	**2.28**	**1.49**	**1.96**	**2.28**
BSHL6		1	**1.37**	**2.08**	**2.09**	**1.37**	**1.80**	**2.09**
BSHL7		1	**1.27**	**1.93**	**1.93**	**1.27**	**1.66**	**1.93**
BSHL8		1	0.91	**1.38**	**1.39**	0.91	**1.19**	**1.39**
BSHL9		1	0.70	**1.06**	**1.06**	0.70	0.91	**1.06**
BSHL10		1	0.56	0.85	0.85	0.56	0.73	0.85
BSHL11		1	0.47	0.70	0.71	0.47	0.61	0.71

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
BSHL12		1	0.39	0.60	0.60	0.39	0.51	0.60
BSHL13		1	0.34	0.51	0.52	0.34	0.44	0.52
BSHL14		1	0.30	0.45	0.45	0.30	0.38	0.45
PGHR2_1	Pagham Habour (SPA)	3	0.82	1.38	1.51	0.82	1.01	1.51
PGHR2_2		3	0.70	1.18	1.29	0.70	0.87	1.29
PGHR2_3		3	0.60	1.01	1.10	0.60	0.74	1.10
PGHR2_4		3	0.49	0.82	0.90	0.49	0.60	0.90
PGHR2_5		3	0.41	0.69	0.76	0.41	0.51	0.76
PGHR2_6		3	0.35	0.60	0.65	0.35	0.44	0.65
PGHR2_7		3	0.31	0.52	0.57	0.31	0.38	0.57
PGHR2_8		3	0.18	0.31	0.34	0.18	0.23	0.34
PGHR2_9		3	0.13	0.22	0.24	0.13	0.16	0.24
PGHR2_10		3	0.10	0.17	0.18	0.10	0.12	0.18
PGHR2_11		3	0.08	0.13	0.14	0.08	0.10	0.14
PGHR2_12		3	0.07	0.11	0.12	0.07	0.08	0.12
PGHR2_13		3	0.06	0.09	0.10	0.06	0.07	0.10
PGHR2_14		3	0.05	0.08	0.09	0.05	0.06	0.09
MENS1_1	The Mens (SAC)	3	1.62	1.60	1.62	1.62	1.42	1.62
MENS1_2		3	1.61	1.58	1.59	1.61	1.41	1.59
MENS1_3		3	1.60	1.54	1.56	1.60	1.40	1.56
MENS1_4		3	1.59	1.51	1.52	1.59	1.38	1.52
MENS1_5		3	1.58	1.48	1.49	1.58	1.37	1.49
MENS1_6		3	1.57	1.45	1.46	1.57	1.36	1.46
MENS1_7		3	1.56	1.44	1.45	1.56	1.35	1.45
MENS1_8		3	1.54	1.39	1.39	1.54	1.33	1.39
MENS1_9		3	1.54	1.36	1.37	1.54	1.32	1.37
MENS1_10		3	1.53	1.35	1.35	1.53	1.31	1.35
MENS1_11		3	1.53	1.34	1.34	1.53	1.31	1.34
MENS1_12		3	1.53	1.33	1.33	1.53	1.31	1.33
MENS1_13		3	1.52	1.33	1.33	1.52	1.30	1.33

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
MENS1_14		3	1.52	1.32	1.32	1.52	1.30	1.32
MENS2_1	The Mens (SAC)	3	1.61	1.59	1.61	1.61	1.41	1.61
MENS2_2		3	1.61	1.56	1.58	1.61	1.40	1.58
MENS2_3		3	1.59	1.53	1.54	1.59	1.39	1.54
MENS2_4		3	1.58	1.49	1.50	1.58	1.37	1.50
MENS2_5		3	1.57	1.47	1.47	1.57	1.36	1.47
MENS2_6		3	1.56	1.44	1.45	1.56	1.35	1.45
MENS2_7		3	1.56	1.43	1.43	1.56	1.35	1.43
MENS2_8		3	1.54	1.38	1.38	1.54	1.32	1.38
MENS2_9		3	1.53	1.35	1.35	1.53	1.31	1.35
MENS2_10		3	1.53	1.34	1.34	1.53	1.31	1.34
MENS2_11		3	1.53	1.33	1.33	1.53	1.30	1.33
MENS2_12		3	1.52	1.32	1.33	1.52	1.30	1.33
MENS2_13		3	1.52	1.32	1.32	1.52	1.30	1.32
MENS2_14		3	1.52	1.32	1.32	1.52	1.30	1.32
EBCM1	Ebernoe Common (SAC)	3	1.89	1.90	1.89	1.89	1.73	1.89
EBCM2		3	1.85	1.83	1.82	1.85	1.68	1.82
EBCM3		3	1.82	1.78	1.77	1.82	1.64	1.77
EBCM4		3	1.79	1.72	1.71	1.79	1.60	1.71
EBCM5		3	1.77	1.67	1.66	1.77	1.57	1.66
EBCM6		3	1.75	1.64	1.63	1.75	1.55	1.63
EBCM7		3	1.74	1.62	1.61	1.74	1.53	1.61
EBCM8		3	1.69	1.53	1.53	1.69	1.48	1.53
EBCM9		3	1.67	1.49	1.49	1.67	1.45	1.49
EBCM10		3	1.65	1.46	1.46	1.65	1.43	1.46
EBCM11		3	1.64	1.45	1.44	1.64	1.42	1.44
EBCM12		3	1.64	1.43	1.43	1.64	1.41	1.43
EBCM13		3	1.63	1.42	1.42	1.63	1.40	1.42
EBCM14		3	1.63	1.42	1.42	1.63	1.40	1.42

B.3 Total NO_x Concentration Results

Table 22. Total NO_x concentration rates for the Local Plan in isolation and in combination with other plans and projects

Note: Numbers in **Bold** are above the relevant critical loads/levels.

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
CLSM1_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	30	**77.02**	**30.66**	**30.83**	**77.02**	**30.50**	**30.83**
CLSM1_2		30	**73.83**	29.72	29.89	**73.83**	29.57	29.89
CLSM1_3		30	**69.68**	28.51	28.65	**69.68**	28.36	28.65
CLSM1_4		30	**64.06**	26.86	26.99	**64.06**	26.73	26.99
CLSM1_5		30	**59.60**	25.55	25.67	**59.60**	25.43	25.67
CLSM1_6		30	**55.96**	24.48	24.59	**55.96**	24.37	24.59
CLSM1_7		30	**52.93**	23.60	23.69	**52.93**	23.49	23.69
CLSM1_8		30	**43.03**	20.70	20.76	**43.03**	20.61	20.76
CLSM1_9		30	**37.51**	19.08	19.12	**37.51**	19.00	19.12
CLSM1_10		30	**33.95**	18.04	18.07	**33.95**	17.97	18.07
CLSM1_11		30	**31.44**	17.31	17.33	**31.44**	17.24	17.33
CLSM1_12		30	29.57	16.76	16.78	29.57	16.70	16.78
CLSM1_13		30	28.12	16.34	16.35	28.12	16.27	16.35
CLSM1_14		30	26.96	16.00	16.01	26.96	15.94	16.01
KGVE1	Kingley Vale (SAC)	30	10.56	7.88	7.91	10.56	7.63	7.91
KGVE2		30	10.55	7.88	7.90	10.55	7.63	7.90
KGVE3		30	10.53	7.87	7.89	10.53	7.63	7.89
KGVE4		30	10.50	7.85	7.88	10.50	7.62	7.88
KGVE5		30	10.48	7.84	7.87	10.48	7.61	7.87
KGVE6		30	10.45	7.83	7.86	10.45	7.60	7.86
KGVE7		30	10.43	7.82	7.84	10.43	7.59	7.84
KGVE8		30	10.33	7.77	7.79	10.33	7.56	7.79
KGVE9		30	10.27	7.74	7.76	10.27	7.54	7.76
KGVE10		30	10.21	7.71	7.73	10.21	7.53	7.73
KGVE11		30	10.17	7.69	7.70	10.17	7.51	7.70

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
KGVE12		30	10.14	7.67	7.68	10.14	7.50	7.68
KGVE13		30	10.10	7.65	7.66	10.10	7.49	7.66
KGVE14		30	10.07	7.64	7.65	10.07	7.48	7.65
PGHR1_1	Pagham Habour (SPA)	30	**52.10**	25.50	27.05	**52.10**	21.58	27.05
PGHR1_2		30	**47.53**	23.61	24.98	**47.53**	20.13	24.98
PGHR1_3		30	**43.11**	21.75	22.96	**43.11**	18.72	22.96
PGHR1_4		30	**38.06**	19.68	20.69	**38.06**	17.13	20.69
PGHR1_5		30	**34.45**	18.19	19.07	**34.45**	15.99	19.07
PGHR1_6		30	**31.67**	17.03	17.80	**31.67**	15.11	17.80
PGHR1_7		30	29.42	16.12	16.81	29.42	14.40	16.81
PGHR1_8		30	22.65	13.37	13.81	22.65	12.27	13.81
PGHR1_9		30	19.35	12.02	12.33	19.35	11.23	12.33
PGHR1_10		30	17.51	11.25	11.49	17.51	10.66	11.49
PGHR1_11		30	16.33	10.76	10.95	16.33	10.29	10.95
PGHR1_12		30	15.51	10.42	10.59	15.51	10.03	10.59
PGHR1_13		30	14.90	10.19	10.33	14.90	9.84	10.33
PGHR1_14		30	14.46	10.01	10.14	14.46	9.70	10.14
DNBG1	Duncton to Bignor Escarpment (SAC)	30	17.86	12.38	12.77	17.86	9.59	12.77
DNBG2		30	17.21	11.99	12.35	17.21	9.38	12.35
DNBG3		30	16.44	11.52	11.85	16.44	9.14	11.85
DNBG4		30	15.46	10.91	11.20	15.46	8.83	11.20
DNBG5		30	14.71	10.45	10.71	14.71	8.59	10.71
DNBG6		30	14.11	10.08	10.31	14.11	8.39	10.31
DNBG7		30	13.62	9.77	9.98	13.62	8.24	9.98
DNBG8		30	12.03	8.79	8.93	12.03	7.73	8.93
DNBG9		30	11.21	8.26	8.37	11.21	7.47	8.37
DNBG10		30	10.70	7.95	8.03	10.70	7.31	8.03
DNBG11		30	10.37	7.74	7.81	10.37	7.20	7.81
DNBG12		30	10.15	7.60	7.66	10.15	7.13	7.66
DNBG13		30	9.99	7.49	7.55	9.99	7.08	7.55

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
DNBG14		30	9.86	7.41	7.46	9.86	7.04	7.46
SACT1	Singleton and Cocking Tunnels (SAC)	30	10.76	7.95	8.02	10.76	7.62	8.02
SACT2		30	10.74	7.94	8.01	10.74	7.61	8.01
SACT3		30	10.71	7.93	7.99	10.71	7.61	7.99
SACT4		30	10.67	7.90	7.97	10.67	7.59	7.97
SACT5		30	10.64	7.88	7.95	10.64	7.58	7.95
SACT6		30	10.60	7.86	7.93	10.60	7.57	7.93
SACT7		30	10.57	7.85	7.91	10.57	7.56	7.91
CLSM2_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	30	13.35	9.90	9.94	13.35	9.73	9.94
CLSM2_2		30	13.34	9.89	9.93	13.34	9.72	9.93
CLSM2_3		30	13.32	9.88	9.92	13.32	9.72	9.92
CLSM2_4		30	13.30	9.87	9.91	13.30	9.71	9.91
CLSM2_5		30	13.27	9.86	9.90	13.27	9.70	9.90
CLSM2_6		30	13.25	9.85	9.88	13.25	9.69	9.88
CLSM2_7		30	13.23	9.84	9.87	13.23	9.69	9.87
CLSM2_8		30	13.13	9.80	9.82	13.13	9.66	9.82
CLSM2_9		30	13.05	9.76	9.78	13.05	9.63	9.78
CLSM2_10		30	12.99	9.73	9.75	12.99	9.61	9.75
CLSM2_11		30	12.93	9.71	9.72	12.93	9.59	9.72
CLSM2_12		30	12.89	9.69	9.70	12.89	9.58	9.70
CLSM2_13		30	12.85	9.67	9.68	12.85	9.57	9.68
CLSM2_14		30	12.82	9.66	9.66	12.82	9.56	9.66
SOME1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	30	25.56	14.85	15.70	25.56	13.20	15.70
SOME2		30	24.25	14.28	15.05	24.25	12.78	15.05
SOME3		30	22.67	13.59	14.26	22.67	12.28	14.26
SOME4		30	20.72	12.74	13.29	20.72	11.66	13.29
SOME5		30	19.32	12.13	12.60	19.32	11.21	12.60
SOME6		30	18.26	11.67	12.07	18.26	10.88	12.07
SOME7		30	17.44	11.32	11.67	17.44	10.62	11.67
SOME8		30	15.15	10.33	10.54	15.15	9.89	10.54

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
SOME9		30	14.12	9.88	10.03	14.12	9.56	10.03
SOME10		30	13.53	9.62	9.74	13.53	9.37	9.74
SOME11		30	13.16	9.46	9.55	13.16	9.26	9.55
SOME12		30	12.90	9.35	9.43	12.90	9.17	9.43
SOME13		30	12.71	9.27	9.33	12.71	9.11	9.33
SOME14		30	12.56	9.21	9.26	12.56	9.07	9.26
CLSM3_1	Solent Maritime (SAC) and Chichester and Langstone Harbours (SPA)	30	24.94	14.22	14.80	24.94	12.67	14.80
CLSM3_2		30	24.08	13.85	14.37	24.08	12.39	14.37
CLSM3_3		30	22.97	13.38	13.82	22.97	12.03	13.82
CLSM3_4		30	21.50	12.76	13.10	21.50	11.56	13.10
CLSM3_5		30	20.37	12.28	12.55	20.37	11.20	12.55
CLSM3_6		30	19.48	11.89	12.11	19.48	10.91	12.11
CLSM3_7		30	18.75	11.58	11.75	18.75	10.67	11.75
CLSM3_8		30	16.50	10.60	10.66	16.50	9.95	10.66
CLSM3_9		30	15.33	10.09	10.10	15.33	9.58	10.10
CLSM3_10		30	14.62	9.77	9.76	14.62	9.35	9.76
CLSM3_11		30	14.13	9.55	9.53	14.13	9.20	9.53
CLSM3_12		30	13.78	9.39	9.37	13.78	9.09	9.37
CLSM3_13		30	13.50	9.27	9.25	13.50	9.00	9.25
CLSM3_14		30	13.28	9.17	9.15	13.28	8.93	9.15
SLDR1	Portsmouth Harbour (under Solent & Dorset Coast in GIS) (SPA)	30	**77.31**	**33.90**	**34.09**	**77.31**	**33.69**	**34.09**
SLDR2		30	**74.65**	**33.10**	**33.28**	**74.65**	**32.92**	**33.28**
SLDR3		30	**71.11**	**32.05**	**32.21**	**71.11**	**31.88**	**32.21**
SLDR4		30	**66.18**	**30.58**	**30.72**	**66.18**	**30.44**	**30.72**
SLDR5		30	**62.15**	29.38	29.51	**62.15**	29.27	29.51
SLDR6		30	**58.79**	28.39	28.51	**58.79**	28.29	28.51
SLDR7		30	**55.96**	27.55	27.66	**55.96**	27.46	27.66
SLDR8		30	**46.52**	24.76	24.84	**46.52**	24.71	24.84
SLDR9		30	**41.16**	23.19	23.25	**41.16**	23.15	23.25
SLDR10		30	**37.72**	22.18	22.23	**37.72**	22.14	22.23

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
BSHL1	Buster Hill (SAC)	30	**303.79**	**187.81**	**188.92**	**303.79**	**133.77**	**188.92**
BSHL2		30	**290.74**	**179.73**	**180.79**	**290.74**	**128.09**	**180.79**
BSHL3		30	**273.25**	**168.94**	**169.93**	**273.25**	**120.51**	**169.93**
BSHL4		30	**248.35**	**153.56**	**154.45**	**248.35**	**109.71**	**154.45**
BSHL5		30	**227.54**	**140.72**	**141.54**	**227.54**	**100.69**	**141.54**
BSHL6		30	**209.98**	**129.92**	**130.67**	**209.98**	**93.12**	**130.67**
BSHL7		30	**194.95**	**120.69**	**121.38**	**194.95**	**86.65**	**121.38**
BSHL8		30	**142.60**	**88.58**	**89.08**	**142.60**	**64.15**	**89.08**
BSHL9		30	**111.87**	**69.75**	**70.14**	**111.87**	**50.98**	**70.14**
BSHL10		30	**91.75**	**57.49**	**57.80**	**91.75**	**42.40**	**57.80**
BSHL11		30	**77.63**	**48.90**	**49.15**	**77.63**	**36.39**	**49.15**
BSHL12		30	**67.14**	**42.55**	**42.76**	**67.14**	**31.91**	**42.76**
BSHL13		30	**59.16**	**37.69**	**37.88**	**59.16**	28.51	**37.88**
BSHL14		30	**52.89**	**33.85**	**34.01**	**52.89**	25.86	**34.01**
PGHR2_1	Pagham Habour (SPA)	30	**46.40**	23.05	24.37	**46.40**	19.74	24.37
PGHR2_2		30	**41.36**	20.98	22.12	**41.36**	18.15	22.12
PGHR2_3		30	**36.96**	19.19	20.16	**36.96**	16.77	20.16
PGHR2_4		30	**32.14**	17.22	18.01	**32.14**	15.25	18.01
PGHR2_5		30	28.87	15.88	16.54	28.87	14.22	16.54
PGHR2_6		30	26.42	14.88	15.45	26.42	13.45	15.45
PGHR2_7		30	24.54	14.11	14.62	24.54	12.86	14.62
PGHR2_8		30	19.20	11.93	12.24	19.20	11.19	12.24
PGHR2_9		30	16.79	10.95	11.16	16.79	10.43	11.16
PGHR2_10		30	15.45	10.41	10.57	15.45	10.02	10.57
PGHR2_11		30	14.62	10.07	10.20	14.62	9.75	10.20
PGHR2_12		30	14.03	9.83	9.94	14.03	9.57	9.94
PGHR2_13		30	13.62	9.66	9.76	13.62	9.44	9.76
PGHR2_14		30	13.30	9.53	9.61	13.30	9.34	9.61
MENS1_1	The Mens (SAC)	30	12.99	9.84	10.04	12.99	7.88	10.04
MENS1_2		30	12.60	9.55	9.73	12.60	7.76	9.73

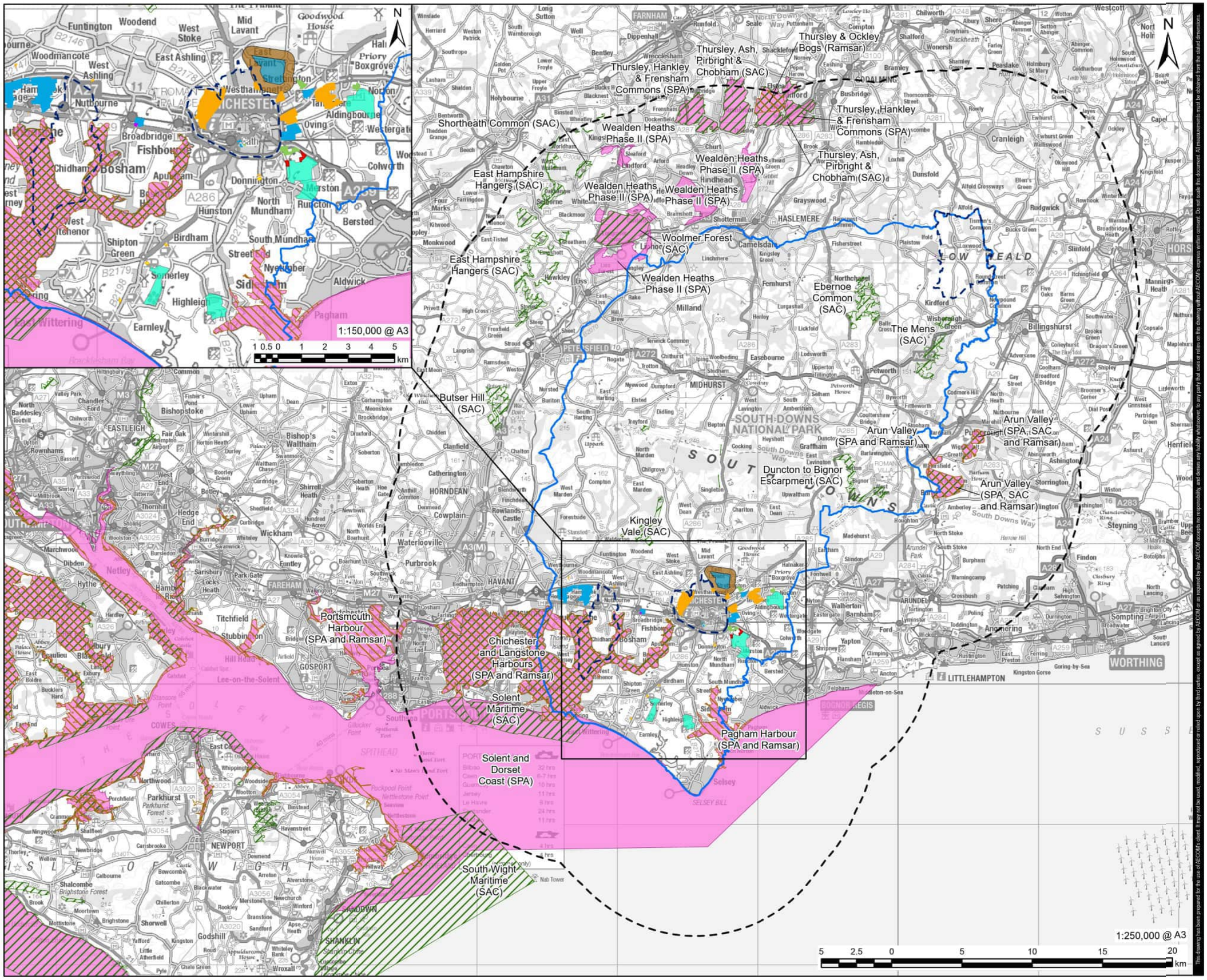
Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
MENS1_3		30	12.15	9.21	9.37	12.15	7.62	9.37
MENS1_4		30	11.59	8.79	8.93	11.59	7.44	8.93
MENS1_5		30	11.18	8.48	8.60	11.18	7.31	8.60
MENS1_6		30	10.86	8.24	8.35	10.86	7.20	8.35
MENS1_7		30	10.61	8.06	8.15	10.61	7.12	8.15
MENS1_8		30	9.88	7.51	7.57	9.88	6.89	7.57
MENS1_9		30	9.52	7.24	7.29	9.52	6.78	7.29
MENS1_10		30	9.32	7.09	7.13	9.32	6.71	7.13
MENS1_11		30	9.18	6.99	7.02	9.18	6.67	7.02
MENS1_12		30	9.08	6.91	6.94	9.08	6.64	6.94
MENS1_13		30	9.01	6.86	6.88	9.01	6.61	6.88
MENS1_14		30	8.95	6.81	6.83	8.95	6.59	6.83
MENS2_1	The Mens (SAC)	30	12.81	9.70	9.90	12.81	7.83	9.90
MENS2_2		30	12.42	9.41	9.59	12.42	7.70	9.59
MENS2_3		30	11.97	9.08	9.23	11.97	7.56	9.23
MENS2_4		30	11.42	8.66	8.79	11.42	7.38	8.79
MENS2_5		30	11.01	8.35	8.47	11.01	7.25	8.47
MENS2_6		30	10.69	8.12	8.22	10.69	7.15	8.22
MENS2_7		30	10.44	7.93	8.02	10.44	7.07	8.02
MENS2_8		30	9.71	7.39	7.44	9.71	6.84	7.44
MENS2_9		30	9.37	7.13	7.17	9.37	6.73	7.17
MENS2_10		30	9.17	6.98	7.02	9.17	6.67	7.02
MENS2_11		30	9.05	6.89	6.92	9.05	6.63	6.92
MENS2_12		30	8.96	6.82	6.85	8.96	6.60	6.85
MENS2_13		30	8.89	6.77	6.79	8.89	6.58	6.79
MENS2_14		30	8.84	6.74	6.76	8.84	6.56	6.76
EBCM1	Ebernoe Common (SAC)	30	22.30	13.03	12.78	22.30	10.85	12.78
EBCM2		30	20.34	12.16	11.95	20.34	10.22	11.95
EBCM3		30	18.91	11.46	11.28	18.91	9.76	11.28
EBCM4		30	17.34	10.69	10.53	17.34	9.26	10.53

Receptor	Designated Site	Critical Level	Total Concentration in Isolation			Total Concentration in Combination		
			Base Year	Future Year DM	Future Year DS	Base Year	Future Year DM	Future year DS
EBCM5		30	16.25	10.18	10.04	16.25	8.90	10.04
EBCM6		30	15.44	9.79	9.67	15.44	8.64	9.67
EBCM7		30	14.78	9.48	9.36	14.78	8.43	9.36
EBCM8		30	12.70	8.46	8.38	12.70	7.76	8.38
EBCM9		30	11.56	7.91	7.86	11.56	7.40	7.86
EBCM10		30	10.87	7.58	7.54	10.87	7.18	7.54
EBCM11		30	10.41	7.37	7.33	10.41	7.03	7.33
EBCM12		30	10.09	7.22	7.19	10.09	6.92	7.19
EBCM13		30	9.84	7.11	7.09	9.84	6.84	7.09
EBCM14		30	9.65	7.02	7.00	9.65	6.78	7.00

Appendix C Maps

Revision: 0 Drawn: AG Checked: LC Approved: MK Date: 2023-01-13

Filename: \\na.aecomnet.com\ifs\EMEA\Leeds-UKLDS2\Legacy\UKLDS2PFPSW001\WIP\LE_Projects\GIS Management\HRA\20222211125_Chichester_HRA\02_Maps\01_Chichester_HRA.aprx



AECOM

PROJECT

Chichester HRA

CLIENT

Chichester District Council

CONSULTANT

AECOM Limited
2 City Walk
Holbeck, Leeds
LS11 9AR
www.aecom.com

LEGEND

- Chichester District Boundary
- 10km Study Area
- Proposed Horticultural Development Area Deletion
- Horticultural Development Area
- Gypsy and Traveller Site
- Parish Allocations
- Existing Strategic Site Allocations
- New Employment Site Allocation
- Proposed Strategic Site Allocations
- SADPD Housing
- S15 Goodwood Motor Circuit and Airfield
- S16 Development Within Vicinity of Goodwood Motor Circuit and Airfield
- Ramsar
- Special Area of Conservation
- Special Protection Area

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60549754

FIGURE TITLE

European Sites and Allocations Within 10km

FIGURE NUMBER

Figure 1

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