Barrow-cum-Denham Neighbourhood Plan

Habitat Regulation Assessment

Barrow Parish Council and Denham Parish Council

26 July 2024

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Quality information

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1. Introduction

1.1 Scope of Project

1.1.1 AECOM was appointed by Barrow Parish Council and Denham Parish Council to undertake a Habitats Regulations Assessment (HRA) for the Barrow-cum-Denham draft Regulation 16 Neighbourhood Plan (BCDNP) 2019-2041. This is to inform the parish councils and the local authority (West Suffolk District Council, in their role as the Competent Authority) of the potential effects of the BCDNP on Habitats sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites designated under the Ramsar convention), and how they are being, or should be, addressed in the draft Neighbourhood Plan (NP).

1.1.2 The BCDNP contains policies that address a wide range of prominent issues, including maintaining the parish as a distinct entity, protecting its environment and historic features, and addressing housing needs and requirements in relation to community services, travel, and climate change.

1.1.3 To inform this report, the policies contained within the overarching West Suffolk District Local Plan[2] (WSDLP), sitting at a higher tier in the planning framework, were considered. By definition, development delivered through NPs must conform to the legal framework established by Local Planning Authorities (LPAs), therefore the requirements of the WSDLP are a factor in determining the potential impact of NP policies.

1.1.4 The objective of this report is to identify if any policies and/or sites proposed for allocation in the BCDNP have the potential to cause Likely Significant Effects (LSEs) and, where identified, adverse effects on the integrity of Habitats sites, either in isolation or in combination with other plans and projects, and to determine whether site-specific or policy mitigation measures are required.

1.2 Local Context

1.1.5 Barrow-cum-Denham Parish Council comprises the village of Barrow (population 1,756 at the 2021 census[3]) and the hamlet of Denham (population 197 at the 2021 census [4]) which sit side by side in the countryside of Suffolk, England. They are both rural villages situated been Bury St Edmunds (approximately 6 miles away) and Newmarket (approximately 9 miles away). Cambridge and Ipswich are both approximately 30 miles away.

1.1.6 The WSDLP identifies Barrow Parish as a Key Service Settlement, given that it provides a range of services and facilities to support the basic needs of its residents. The WSDLP identifies an allocation for residential developments of two sites with an indicative capacity of 165 homes.

1.3 Legislative Context

1.1.7 The United Kingdom (UK) left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). The Withdrawal Act retains the body of existing EU-derived law within our domestic law. The most recent amendments to the Habitats Regulations – the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – clarify that the need for HRA continues post-Brexit.

1.1.8 The HRA process applies the Precautionary Principle[5] to Habitats (previously "European") sites. Plans and projects can only be permitted after ascertaining that there will be no adverse effect on the integrity of the Habitats site(s) in question. Plans and projects with predicted adverse impacts on Habitats sites

[2] Available at https://www.westsuffolk.gov.uk/planning/Planning_Policies/local_plans/ws-local-plan-review.cfm [Accessed July 2024]
[3] 2021 Census: Aggregate Data. UK Data Service. SN: 8964, DOI: 10.5257/census/aggregate-2021-1
[4] ibid
[5] 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".*

may still be permitted if there are no alternatives to them that would deliver the same objectives, and there are Imperative Reasons of Over-riding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation is necessary to ensure the overall integrity of the site network.

1.1.9 The need for Appropriate Assessment (AA), (**Box 1**) is set out in the Conservation of Habitats and Species Regulations 2017 (as amended).

Box 1: The Legislative Basis for Appropriate Assessment

Conservation of Habitats and Species Regulations 2017 (As Amended)

With specific reference to Neighbourhood Plans, Regulation 106(1) states that:

"A qualifying body which submits a proposal for a neighbourhood development plan must provide such information as the competent authority [the Local Planning Authority] may reasonably require for the purpose of the assessment under regulation 105… [which sets out the formal process for determination of 'likely significant effects' and the appropriate assessment']."

1.1.10 Therefore, it is important to note that this report has two purposes:

- To assist the Qualifying Body (Barrow and Denham Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect Habitats sites, thus making it more likely their plan will be deemed compliant with the Conservation of Habitats and Species Regulations 2017 (as amended); and
- On behalf of the Qualifying Body, to assist the LPA (West Suffolk District Council) in discharging their duty under Regulation 105 (in their role as 'plan-making authority' within the meaning of that regulation) and Regulation 106 (in their role as Competent Authority) and reach the formal HRA decision.

1.1.11 As the Competent Authority, the legal responsibility for ensuring that a decision of LSEs is made, an AA (where required) is undertaken, and Natural England is consulted falls on the LPA. However, they are entitled to request from the Qualifying Body the necessary information on which to base their judgment, which is a key purpose of this report.

1.1.12 Over the years, the term HRA has become widely used to describe the overall process set out in the Habitats Regulations, from screening through to identification of IROPI. This term has been coined to distinguish the overall process from the individual stage of AA. Throughout this report the term HRA is used for the overall process and the use of AA is restricted to the specific stage of that name.

1.1.13 In spring 2018, the 'Sweetman' European Court of Justice ruling[6] clarified that 'mitigation' (i.e., measures that are specifically introduced to avoid or reduce a harmful effect on a Habitats site that would otherwise arise) must **not** be considered when forming a view on LSEs. Mitigation should instead only be considered at the AA stage. This HRA has been cognisant of that ruling.

1.4 Scope of the HRA

1.1.14 There are no standard criteria for determining the ultimate physical scope of an HRA of a Plan document. Therefore, in considering the physical scope of the assessment, this HRA is guided primarily by the identified impact pathways (called the source-pathway-receptor model) rather than by arbitrary 'zones'. Current guidance suggests that the following Habitats sites should be included in the scope of assessment:

- all sites within the boundary of Barrow-cum-Denham Parish; and,
- sites shown to be linked to development which is within the parish boundary through a known impact pathway (discussed below).

1.1.15 Briefly defined, impact pathways are routes by which the implementation of a policy within an NP document can adversely affect a Habitat site. An example of this would be new residential development

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

resulting in an increased population and thus increased recreational pressure, which could then negatively affect Habitat sites by, for example, disturbing wintering or breeding birds.

1.1.16 Guidance from the Ministry of Housing, Communities and Local Government (MHCLG) 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*' (MHCLG, 2006, p.6). More recently, the Court of Appeal ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be '*achieved in practice*' to satisfy that the proposed development would have no adverse effect, then this would suffice. In this case, the High Court ruled that for '*a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice, it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations*.'

1.5 The Layout of this Report

1.1.17 **Chapter 2** of this report explains the method by which this HRA has been carried out, including the three essential tasks that form part of HRA. **Chapter 3** provides details of the relevant Habitats sites, including Conservation Objectives and current pressures and threats. **Chapter 4** provides detailed background on the main impact pathways identified in relation to the BCDNP and the relevant Habitats sites. **Chapter 5** undertakes the screening assessment of Likely Significant Effects of the Plan policies and allocated sites. The Appropriate Assessment is undertaken in **Chapter 6**. The conclusions and recommendations arising from the HRA process are provided in **Chapter 7**.

1.6 Quality Assurance

1.1.18 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2015 and 14001:2015, ISO 44001:2017 and ISO 45001:2018. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.

1.1.19 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2017).

2. Method

2.1 Introduction to HRA Method

2.1.1 The HRA will be carried out with reference to the general EC guidance on HRA[7] and that of the UK government[8].

2.1.2 Figure 1 below outlines the stages of HRA. The stages are essentially iterative, being revisited as necessary in response to more detailed information becoming available, recommendations being considered and any relevant changes to the NP being made until no adverse effects on site integrity remain.

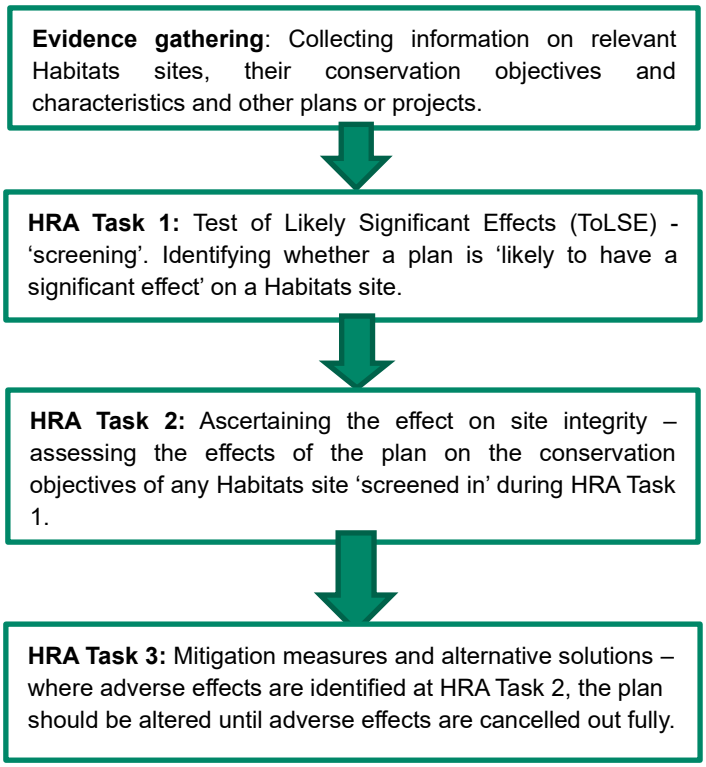

Figure 1: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2011.

2.2 Description of HRA Tasks

2.2.1 HRA Task 1 – Likely Significant Effects (LSEs) Screening

2.1.3 Following evidence gathering, the first stage of any HRA is a LSEs screening, essentially a brief, high-level assessment to decide whether the full subsequent stage known as AA 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?

2.1.4 The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in adverse effects upon Habitats sites, usually because there is no mechanism for an adverse interaction.

[7] European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.
[8] https://www.gov.uk/guidance/appropriate-assessment

2.1.5 The LSEs screening is based on the identification of the impact source, its pathway to receptors and an appraisal of the specific Habitats site receptors. These are normally qualifying features but also include habitats and species fundamental for such features to achieve favourable conservation status (e.g. functionally linked habitats outside Habitats site boundaries).

2.1.6 In the Waddenzee case[9], the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:

- An effect should be considered likely, '*if it cannot be excluded, on the basis of objective information, that it will* have a significant effect on the site' (para 44);
- An effect should be considered significant 'if it undermines the conservation objectives' (para 48); and
- Where a plan or project has an effect on a site 'but is not likely to undermine its conservation objectives, *it cannot be considered likely to have a significant effect on the site concerned*' (para 47).

2.1.7 The LSEs screening consists of two parts: It determines whether any policies could result in negative impact pathways and then establishes whether any Habitats sites might be affected. It is important to note that LSEs screening must generally follow the Precautionary Principle as its main purpose is to determine whether the subsequent stage of AA (i.e., a more detailed investigation) is required.

2.2.2 HRA Task 2 – Appropriate Assessment

2.1.8 Where it is determined that a conclusion of 'no LSEs' cannot be drawn, the analysis must proceed to the next stage of HRA known as AA. Case law has clarified that AA is not a technical term. In other words, there are no particular technical analyses or levels of technical analysis that are classified by law as belonging to AA rather than the screening process. AA refers to whatever level of assessment is appropriate to form a conclusion regarding effects on the integrity (coherence of structure and function) of Habitats sites in light of their Conservation Objectives.

2.1.9 By virtue of the fact that it follows LSEs screening, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during AA is whether there is available mitigation that would entirely address the potential effect. In practice, the AA would take any policies or proposed sites that could not be dismissed following the high-level screening analysis and evaluate the potential for an effect in more detail, with a view to concluding whether there would be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the Habitats site(s)).

2.1.10 In 2018, the Holohan ruling[10] handed down by the European Court of Justice included, among other provisions, paragraph 39, which 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].

2.1.11 In evaluating significance, AECOM will rely on professional judgement, the results of bespoke studies supported by appropriate evidence/data, and any previous stakeholder consultation regarding the impacts of development on the Habitat sites considered.

2.2.3 HRA Task 3 – Mitigation

2.1.12 Where necessary, measures will be recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on Habitats sites. For example, there is considerable precedent, both nationally and locally, concerning the level of detail that a Plan document needs to contain regarding mitigation for recreational pressure impacts on Habitats 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 the adoption of

[9] Case C-127/02
[10] Case C-461/17

the Plan, but that an adequate policy framework within which these measures can be delivered is provided.

2.1.13 When discussing mitigation for a NP 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 NP document is a higher-level policy document.

2.3 Geographical Scope of the HRA

2.1.14 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 Habitats sites.

2.1.15 In the case of the BCDNP, an area extending to 10km from the parish boundary was selected in which Habitats sites were identified. Habitats sites with hydrological sensitivities were also considered. A maximum search radius of 10km has been used because any potential for aquatic pollution effects at greater distances is likely negligible due to dilution and attenuation factors.

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

2.1.16 It is a requirement of the Regulations that the impacts of any Plan being assessed are not considered in isolation, but also in-combination with other plans and projects that may also affect the Habitats site(s) in question. For example, recreational pressure within sensitive sites (i.e. the impact of the overall visitor volume) is the consequence of the combined regional housing growth, rather than only within individual parishes or LPAs.

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

2.1.18 The following plans are considered to have the potential to act in-combination with the BCDNP:

- Anglian Water – Draft Drainage and Wastewater Management Plan (DWMP), 2022[11]
- Former St Edmundsbury Core Strategy[12]
- Hargrave Neighbourhood Regulation 16 Plan (2018)[13]
- West Suffolk District Local Plan Draft Regulation 19 (2024)[14]
- Suffolk Minerals and Waste Local Plan (2014)[15]
- Former Forest Heath District Council Local Plan[16]
- Haverhill Vision 2031[17]

[11] Anglian Water, 2022. Draft Drainage and Wastewater Management Plan (DWMP) Technical Document. [Accessed [26 July 2024] via: Draft Drainage & Wastewater Management Plan Technical Document (anglianwater.co.uk)
[12] https://www.westsuffolk.gov.uk/planning/Planning_Policies/local_plans/upload/Core-Strategy-December-2010.pdf [Accessed [26 July 2024]
[13] https://www.westsuffolk.gov.uk/planning/Planning_Policies/neighbourhood-planning/upload/Hargrave-Neighbourhood-Plan-Made-July-2018-2.pdf [Accessed [26 July 2024]
[14] West Suffolk Local Plan Submission Draft (Regulation 19) 2024 - West Suffolk Local Plan (Regulation 19) Submission Draft January 2024 - West Suffolk Planning Policy Consultations (inconsult.uk) [Accessed [26 July 2024]
[15] https://www.suffolk.gov.uk/planning-waste-and-environment/minerals-and-waste-policy/suffolk-minerals-and-waste-development-scheme [Accessed [26 July 2024]
[16] https://www.westsuffolk.gov.uk/planning/Planning_Policies/local_plans/forest-heath-local-plan.cfm [Accessed [26 July 2024]
[17] https://www.westsuffolk.gov.uk/planning/Planning_Policies/local_plans/upload/HH-Vision_2015v8-hi-res-compressed.pdf [Accessed [26 July 2024]

- Bury St Edmunds Vision 2031
- Breckland District Council Local Plan[18]
- Forest Heath Core Strategy[19]

2.1.19 While the broad potential impact of these other projects and plans has been considered, this assessment does not undertake full HRA on each document. Instead, existing HRAs that have been undertaken to support the consenting process of these projects were drawn upon.

2.1.20 In this document, each site proposed for allocation and policy within the BCDNP is subjected to HRA screening (summarised in Tables 2 and 3, respectively). LSEs are then scrutinised in more detail in the main body of the report, and, where necessary, an AA is undertaken.

[18] https://www.breckland.gov.uk/media/16659/Adopted-Breckland-Local-Plan/pdf/Appendix_4_-_Breckland_District_Council_Local_Plan.pdf?m=1704795365193 [Accessed [26 July 2024]
[19] https://www.westsuffolk.gov.uk/planning/Planning_Policies/local_plans/forestheathcorestrategy.cfm [Accessed [26 July 2024]

3. Habitats Sites

3.1.1 In the case of the BCDNP, it was determined that the Habitats sites identified in Table 1 require consideration. The locations of these Habitats sites in relation to the BCDNP boundary are shown in Figure 3 Appendix A.

Table 1. Habitats sites for consideration and their location in relation to the BCDNP boundary.

Habitats site	Location and reason for inclusion
Breckland SPA	**Adjacent to BCDNP boundary to the north.** Sensitive to air pollution (impact of nitrogen deposition, identified as requiring further investigation) (stone curlew (*Burhinus Oedicnemus*), woodlark (*Lullula arborea*), dry heaths and dry grassland) and public disturbance (European nightjar (*Caprimulgus europaeus*) and woodlark).
Breckland SAC	**6km, north of the BCDNP boundary.** Sensitive to water pollution (impact of eutrophicaiton on species distribution – aquatic flora) , air pollution (impact of nitrogen deposition, identified as requiring further investigation – stone curlew, woodlark, dry heaths and dry grassland) and public disturbance (European nightjar and woodlark).
Rex Graham Reserve SAC	**8.5km, north of the BCDNP boundary.** Sensitive to recreational pressure and air pollution both in relation to H6210 Dry grasslands and scrublands on chalk or limestone (important orchid sites).
Chippenham Fen SAC and Ramsar site	**9.75km, west of the BCDNP boundary.** Sensitive to air pollution and water pollution.

Source: www.magic.defra.gov.uk

3.1.2 The Habitats sites were identified based upon a search surrounding the BCDNP boundary and the sensitivities of their qualifying features. The above sites were subjected to the initial screening exercise. The presence of a conceivable pathway linking the parish to a Habitats site does not necessarily mean that LSEs will occur.

3.1 Breckland SAC/SPA

3.1.1 Introduction

3.1.3 The area in which this site is located is characterised by a gently undulating plateau underlain by a bedrock of Cretaceous Chalk that is largely covered by varying depths of windblown sand. The highly variable soils generally consist of a very sandy free-draining mix of chalk, sand, silt, clay and flints, which show marked pH variation within short distances. This profoundly influences the natural vegetation and has resulted in mosaics of heather-dominated heathland, acidic grassland and calcareous grassland that are unlike those of any other site. In many places there is a linear or patterned distribution of heath and grassland, arising from fossilised soil patterns that formed under peri-glacial conditions. The climate of the Brecks is markedly less maritime than other parts of England, with relatively hot summers, cold winters and low rainfall. The unique combination of underlying geology, low-fertility soils, soil disturbance, a dry, frost-prone climate and grazing by sheep and rabbits has strongly influenced the natural and cultural evolution of the landscape.

3.1.2 Reasons for SAC designation[20]

3.1.4 Qualifying habitats of European Importance that are supported by the site are:

[20] JNCC (2019). Breckland SAC. Available online: https://sac.jncc.gov.uk/site/UK0019865 [Accessed: July 2024].

- Inland dunes with open *Corynephorus* and *Agrostis* grasslands

Inland dunes with open *Corynephorus* and *Agrostis* grasslands are an extremely rare habitat in the UK and are found in one small part of Breckland in East Anglia, eastern England. This habitat comprises inland dune grassland containing grey hairgrass *Corynephorus canescens*. In the UK, the vegetation of this habitat falls within NVC types SD11 *Carex arenaria – Cornicularia aculeata* dune community, and SD12 *Carex arenaria – Festuca ovina – Agrostis capillaris* grassland, where the vegetation includes stands of grey hairgrass in inland situations.

- Natural eutrophic lakes with Magnopotamion or Hydrocharition

The Breckland meres in Norfolk represent natural eutrophic lakes in the east of England. They are examples of hollows within glacial outwash deposits and are fed by water from the underlying chalk aquifer. Natural fluctuations in groundwater tables mean that these lakes occasionally dry out. The flora is dominated by stonewort – pondweed *Characeae – Potamogetonaceae* associations.

- European dry heaths

The dry acidic heath of Breckland is represented by H1 *Calluna vulgaris – Festuca ovina* heath in the SAC series. The sand sedge-dominated *Carex arenaria* sub-community (H1d) is typical of areas of blown sand – a very unusual feature of this location. The highly variable soils of Breckland, with underlying chalk being largely covered with wind-blown sands, have resulted in mosaics of heather-dominated heathland, acidic grassland and calcareous grassland that are unlike those of any other site. In many places there is a linear or patterned distribution of heath and grassland, arising from fossilised soil patterns that formed under peri-glacial conditions.

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

Breckland in East Anglia is the most extensive surviving area of the rare grassland type CG7 *Festuca ovina – Hieracium pilosella – Thymus praecox* grassland. The grassland is rich in rare species typical of dry, winter-cold, continental areas, and is more akin to the grassland types in central Europe than almost any other semi-natural dry grassland found in the UK. The terrain is relatively flat, with few physical
variations, but there are mosaics of calcareous grassland and heath/acid grassland, giving rise to patterns of structural variation.

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

- Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*

Alder woodland on floodplains. These forests, characteristic of the floodplains of lowland rivers, are now rare throughout Europe. Alder (*Alnus glutinosa*) is usually the dominant tree but willows *Salix* species, ash (*Fraxinus excelsior*), downy birch (*Betula pubescens*) or elder (*Sambucus nigra*) may also be common. This habitat can range from alder stands on the braided channels of fast-flowing rivers, to stands on former peat cuttings along fenland rivers.

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

- Great crested newt (*Triturus cristatus*)

The waterbodies in the SAC are confined to key population centres within the Stanford Training Area. These are located in a variety of habitats including the meres and pingos, spring lines and low-lying meadows with natural depressions, whilst others are clearly man-made. A programme to restore water bodies on the site has been ongoing for a number of years and has greatly increased the extent of available breeding habitat.

3.1.3 Reason for SPA designation[21]

3.1.7 The Breckland SPA is located in parts of both Norfolk and Suffolk in the heart of East Anglia. It forms part of the Brecks National Character Area (NCA 85), which has a very particular land use history and a richly distinctive wildlife, which sets it apart from all surrounding landscapes.

3.1.8 The area consists of a gently undulating plateau underlain by a bedrock of Cretaceous Chalk, which is covered largely by thin deposits of sand and flint of glacial origin. The semi-continental climate, with low rainfall and free-draining soils, has developed dry heath and grassland communities. The complex of soils has led to the creation of intimate mosaics of heather-dominated heathland with acid and calcareous grassland rarely found elsewhere. The remnants of the dry heath and grassland that remain within the SPA today support populations of Annex 1 heathland breeding birds, where grazing by sheep and rabbits is sufficiently intensive to create short turf and open ground. The Annex 1 breeding bird species have also adapted to live in arable and forestry habitats, which cover extensive areas of the SPA. The regular, rotational clear-felling of select areas of plantation forest creates suitable breeding habitats for SPA bird species, which utilise the early years of re-planted blocks.

3.1.9 Qualifying individual species listed in Annex I of the Wild Birds Directive that are supported by the site are:

- Stone-curlew (*Burhinus oedicnemus*) (Breeding)

When classified, the SPA supported 115 breeding pairs (5 year mean 1994 – 1998) which represented 60.1% of the GB population,

- European nightjar (*Caprimulgus europaeus*) (Breeding)

When classified, the SPA supported 415 males breeding (Count as at 1998) which represented 12.2% of the GB population

- Woodlark (*Lullula arborea*) (Breeding)

When classified, the SPA supported 430 breeding pairs (Count as at 1997) which represented 28.7% of the GB population.

3.1.4 Current threats and pressures[22]

3.1.10 The heaths supported by the SAC include the best-preserved inland sand dune vegetation systems. They include the best-preserved systems of inland sand dune vegetation, which is in part characterised by the nationally rare grey hairgrass (*Corynephorus canescens*), and sand sedge (*Carex arenaria*). The G7 *Festuca ovina – Hieracium pilosella – Thymus praecox* grassland type is rich in rare species and is more typical of the steppe vegetation associated with central Europe. Current threats and pressures experienced by the site are:

- Lack of ground disturbance,
- Undergrazing,
- Forestry and woodland management,
- Water pollution,
- Changes in species distributions,
- Stone curlew monitoring and intervention,
- Planning permission: general,
- Monitoring,

[21] JNCC (2001). Breckland SPA designation. Available from: https://publications.naturalengland.org.uk/file/5250790146965504 [Accessed: July 2024]
[22] Natural England (2015). *Site Improvement Plan: Breckland (SIP025*). Available online: http://publications.naturalengland.org.uk/publication/5075188492271616 [Accessed: July 2024]

- Air pollution,
- Public access,
- Climate changes,
- Changes in species distributions,
- Inappropriate scrub control,
- Inappropriate management practices,
- Habitat fragmentation,
- Inappropriate weed control,
- Inappropriate pest control,
- Changes in species distributions, and
- Inappropriate cutting/ mowing.

3.1.5 SAC Conservation Objectives[23]

3.1.11 '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.'

3.1.6 SPA Conservation Objectives[24]

3.1.12 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.'

[23] Natural England (2015). *European Site Conservation Objectives for Breckland SAC (UK0019865*). Available online: http://publications.naturalengland.org.uk/publication/6145904885104640 [Accessed: July 2024]
[24] Natural England (2019). European Site Conservation Objectives for Breckland SPA (UK9009201). Available online: http://publications.naturalengland.org.uk/publication/4572292419944448 [Accessed: 10/08/20]

3.2 Rex Graham Reserve SAC

3.2.1 Introduction

3.1.13 Covering approximately 2.67 hectares and situated within the Brecks National Character Area, Rex Graham Reserve comprises a small disused chalk pit with surrounding grassland and woodland, which supports many military orchids (*Orchis militaris*). Only two other wild populations of this plant are known in the UK and the Rex Graham Reserve population is by far the largest, comprising more than 95% of the current total UK population.

3.2.2 Reasons for designation

3.1.14 Annex I habitats that are a primary reason for the selection of this site is:

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

This habitat type comprises dry calcareous grasslands on chalk or limestone soils, which contain important orchid assemblages and/or individual populations of rare orchids. Priority status is afforded to examples of this habitat type which meet these criteria.

Rex Graham Reserve SAC is a disused chalk pit with developing dry grassland characterised by false oatgrass *Arrhenatherum elatius*. The site has been selected as a SAC as it supports the largest population of military orchid in the UK, comprising more than 95% of the current total population. This wild plant is afforded special protection under the 1981 Wildlife and Countryside Act (as amended) and it is an offence to deliberately pick, collect, cut, uproot or destroy any of these wild plants. Possessing, selling, or exchanging such a plant, for any purpose, is also an offence.

3.2.3 Current threats and pressures

3.1.15 Only two other wild populations of Military orchid are known in the UK and the Rex Graham Reserve population is by far the largest, comprising more than 95% of the current total UK population. Current threats and pressures experienced by the site include[25]:

- Changes in species distribution,
- Air pollution,
- Habitat fragmentation,
- Deer,
- Invasive species, and
- Public access/ disturbance.

3.2.4 Conservation objectives[26]

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

- The extent and distribution of qualifying natural habitats
- The structure and function (including typical species) of qualifying natural habitats, and
- The supporting processes on which qualifying natural habitats'.

[25] Natural England (2015). *Site Improvement Plan: Rex Graham Reserve (SIP183)*. Available from: http://publications.naturalengland.org.uk/publication/5988120809963520 [Accessed: 10/08/20]
[26] Natural England (2018). European Site Conservation Objectives for Rex Graham Reserve SAC (UK0019866) Available online: http://publications.naturalengland.org.uk/publication/5320741566283776 [Accessed: 10/08/20]

3.3 Chippenham Fen SAC/Ramsar site

3.3.1 Introduction

3.1.17 Chippenham Fen is one of three fenland Sites of Special Scientific Interest: Woodwalton Fen, Wicken Fen and Chippenham Fen making up the Fenland SAC. Chippenham Fam is a shallow basin located close to the source of the Chippenham River and is surrounded by higher land over chalk. The site is fed both by water emerging in places from the chalk aquifer, and from the nearby chalk streams. Drainage ditches have been cut throughout and are now used to enable management and to increase water levels during the summer. A rich diversity of fenland and aquatic plants can be found there, including the very rare Cambridge milk parsley (*Selinum carvifolia*), and the site is also known for its impressive invertebrate community. Stands of saw sedge (*Cladium mariscus*) are still managed and cut for thatching.

3.3.2 Reasons for SAC designation

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

- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

Fenland contains, particularly at Chippenham Fen, one of the most extensive examples of the tall herb-rich East Anglian type of M24 *Molinia caerulea – Cirsium dissectum* fen-meadow. It is important for the conservation of the geographical and ecological range of the habitat type, as this type of fen-meadow is rare and ecologically distinctive in East Anglia.

- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** Priority feature

The individual sites within Fenland SAC each hold large areas of calcareous fens, with a long and well-documented history of regular management. There is a full range from species-poor Cladium-dominated fen to species-rich fen with a lower proportion of Cladium and containing such species as black bog-rush Schoenus *nigricans*, tormentil *Potentilla erecta* and meadow thistle *Cirsium dissectum*. There are good transitions to purple moor-grass *Molinia caerulea* and rush pastures, all set within a mosaic of reedbeds and wet pastures.

3.3.3 Reasons for designation of the Ramsar site

- Ramsar criterion 1: A spring-fed calcareous basin mire with a long history of management, which is partly reflected in the diversity of present-day vegetation.
- Ramsar criterion 2: The invertebrate fauna is very rich, partly due to its transitional position between Fenland and Breckland. The species list for the site is very long, including many rare and scarce invertebrates characteristic of ancient fenland sites in Britain.
- Ramsar 3: The site supports diverse vegetation types, rare and scarce plants. The site is the stronghold of Cambridge milk parsley.

3.3.4 Current threats and pressures

3.1.19 The current threats and pressures experienced by the Chippenham Fen SAC/Ramsar are:

- Hydrological changes,
- Water quality, and
- Air pollution: impact of nitrogen deposition.

3.3.5 Conservation objectives

3.1.20 '*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.'

4. Test of Likely Significant Effects

4.1 Introduction

4.1.1 When seeking to identify relevant Habitats sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach, rather than adopting purely a 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment. For an effect to occur, all three elements of this mechanism must be in place, whereas the absence of one or more of the elements means there is no possibility for an effect. Furthermore, even where an impact is predicted to occur, it may not result in significant effects (i.e., those which undermine the Conservation Objectives of a Habitats site).

4.1.2 The Habitats sites that are described in Section 3 and therefore relevant to the Test of Likely Significant Effects (ToLSE) are: Breckland SPA (directly, N), Breckland SAC (6km, N), Rex Graham Reserve SAC (8.5km, N) and Chippenham Fen SAC/Ramsar (9.7km, NW).

4.1.3 Based upon Natural England Site Improvement Plans (SIPs), there are several impact pathways that require consideration regarding increased development within the Burrow-cum-Denham Parish and said Habitats sites. These are:

- Urbanisation;
- Recreational pressure;
- Habitat fragmentation;
- Air quality;
- Water quality (surface water runoff);
- Water quality (discharge of treated sewage effluent); and

4.1.4 Hydrological changes, including water abstraction.

4.1.5 Table 2 describes these environmental impact pathways.

4.2 Approach to BCDNP Policy Screening

4.2.1 There are 17 policies within the BCDNP. Policies were screened out of having LSEs on a Habitats site where any of the following criteria applied:

- they are environmentally positive;
- they will not themselves lead to any development or other change;
- they make provision for change but could have no conceivable negative effect on a Habitats site. This can be because there is no pathway between the policy and the qualifying features or a Habitats site, or because any effect would be positive;
- they make provision for change but could have no significant effect on a Habitats site (i.e., the effect would not undermine the Conservation Objectives of a Habitats site); or,
- the effects of a policy on any particular Habitats site cannot be ascertained because the policy is too general. For example, a policy may be screened out if, based on absence of detail in the policy, it is not possible to identify where, when, or how the policy may be implemented, where effects may occur, or which sites, if any, may be affected.

4.2.2 Any 'criteria-based' policy (i.e., those that simply list criteria with which development needs to comply) or other general policy statements that have no spatial element were also screened out. Likewise, policies that simply 'safeguard' an existing resource (e.g., existing green infrastructure or mineral resources) by preventing other incompatible development, were also screened out.

4.2.3 Therefore, the appraisal focussed on those policies with a definable spatial component. Having established which policies required scrutiny by virtue of being spatially defined, consideration was given as to whether LSEs could be dismissed due to a lack of connectivity to any Habitats site for one of the following reasons:

- a potentially damaging activity may occur as a result of the policy but there is no reasonable pathway connecting it to a Habitats site (due to distance, for example);
- there are no Habitats sites vulnerable to any of the activities that the policy will deliver; or,
- the policy will not result in any damaging activities.

4.2.4 The consideration of BCDNP policies (the Test of Likely Significant Effects) is then documented in Table 3.

Table 2. Description of potential impact pathways from increased development to Habitats sites.

Impact pathway	Discussion
Water quality (surface water runoff)	Increased residential development within Barrow and/or Denham villages could lead to the loss of previously undeveloped land and increased surface water runoff to nearby Habitats sites. Breckland SPA/SAC is located directly north of the parish boundary and is connected by Cavenham Stream running north through the Habitats site to join the River Lark. There is a risk that inappropriate drainage design may lead to increased surface water runoff from new development. Chippenham SAC/Ramsar is located over 9km from the parish boundary and Rex Graham Reserve SAC is located 8.5km N of the parish boundary. These distances are considered too long for these sites to be impacted by issues of surface water runoff from increased development in the Parish. The Rural Vision 2031 also notes that "*The heavy soils in and around Barrow make the area susceptible to surface water flooding, demonstrated by the number of ponds around the village. This will need to be considered when future sites are developed but is an obstacle that can be overcome.*"[27]
Water quality (discharge of treated sewage effluent)	Increased housing development at Barrow-cum-Denham could lead to increased sewage production. Therefore, it is necessary to consider any risk that increased sewage could degrade the water quality (i.e. through increased phosphorus discharge) of Habitats sites, in the absence of environmental mitigation and adequate wastewater treatment works. Barrow Wastewater Treatment Works (WwTW) has very little water supply headroom available to accommodate increased residential development in Barrow-cum-Denham. This will need to be addressed. The Rural Vision 2031 states "*Therefore there will be a need for additional water infrastructure and or treatment upgrades to support new development in the village.*"[27]
Hydrological changes, including water abstraction	The Chippenham Fen SAC/Ramsar supports chalk aquifer and chalk stream fed fens that are susceptible to changes in water table fluctuations. Impacts could occur from increased water abstraction for public water supply[28]
Air quality	Increased residential development within Barrow-cum-Denham would likely lead to a greater number of vehicles within the parish. As such, increased air pollution could arise relative to a situation of no growth. Pollutants released from vehicles may be carried directly by wind currents and deposited to the Breckland SAC/SPA and Rex Graham Reserve SAC or pollutants may become soluble and taken up during evaporation and deposited to said sites during precipitation. Guidance from the Institute of

[27] West Suffolk District Council, Rural Vision 2031, available at: https://www.westsuffolk.gov.uk/planning/Planning_Policies/local_plans/upload/Rural-vision-2015v5-hi-res-compressed.pdf [accessed 26/01/2021]
[28] Labadz, J., Allott, T., Evans, M., Butcher, D., Billett, M., Stainer, S., Yallop, A., Jones, P., Innerdale, M., Harmon, N. and Maher, K., 2010. Peatland Hydrology: Draft Scientific Review to IUCN Peatland Programme Commission of Inquiry on Peatlands.

	Air Quality Management and Highways England both set an impact zone of 200m from the roadside for potential significant air quality effects to vegetation from main road traffic.
Habitat fragmentation and loss of functionally linked land	Simply described, habitat fragmentation is the division of an expanse of habitat into smaller, individual patches that are isolated from each other by the removal of the original habitat[29]. Breckland SAC/SPA supports a diversity of habitats that are the primary reason for the sites' selection. One such habitat includes inland dunes that supports rare species including grey hairgrass and sand sedge; with limited dispersal capabilities. In addition, heathland (also supported by Breckland SAC/SPA) is arguably one of the most severely fragmentated habitats in the world with heathland cover decreased by 85% over the past 150 years as a result of agriculture and development[30]. The loss of heathland has had population consequences to the species that are supported by this habitat (including nightjar and woodlark)[31]. Given that Breckland SAC/SPA is located directly north of Barrow-cum-Denham and supporting habitat (i.e. not within designated boundaries) is found within the parish boundary there is a risk that increased development could fragment these habitats, either through direct loss or providing barriers to movement (i.e. impacting protected species). The stone curlew populations of the SPA have been extensively studied over the past 10 years and it is clear they make considerable use of areas of habitat outside the SPA boundary (suitable farmland or acid grassland). The SIP for the Rex Graham reserve on H6210 Dry grasslands and scrublands on chalk or limestone (important orchid sites) with an action to improve and create flower rich habitat to aid connectivity. The reserve is located 8.5km to the North of the Parish boundary and the BCDNP will not have any negative impact on the creation of the flower rich habitats or connectivity, and so this site is screened out at this stage.
Recreational pressure	Increased development within Barrow-cum-Denham could lead to higher numbers of visitors to Habitats sites, particularly those within relatively easy recreational access. For example, the nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. It is long standing knowledge that the Habitats sites located in Suffolk are attractive to visitors on a county, national and in some cases international level. Increased visitors can have direct and indirect for a Habitats site that could prevent said site achieving its conservation objectives. Habitats sites impacted by recreational pressure are Breckland SAC/SPA and Rex Graham Reserve SAC. Rex Graham Reserve SAC is located within Thetford Forest east of Mildenhall. It is a disused chalk pit, and its main interest is the population of military orchids. The SIP lists Public Access/Disturbance as a vulnerability for the site. The site is managed by The Suffolk Trust for Nature Conservation and to maintain suitable conditions for the military orchid public access must be strictly controlled. In addition, there is rabbit and deer-proof fencing around the pit[32]. As public access is so strictly controlled, an increase in recreational pressure is unlikely to cause a likely significant effect upon the SAC.
Urbanisation	Increased urbanisation could lead to likely significant effects to Habitats sites[33]. For example, development within 400m of an SPA could increase cat predation to ground nesting birds and chicks reducing breeding success[34] of Annex II species, increase the occurrence of wildfire and have profound edge effects and habitat fragmentation. Of relevance to Barrow-cum-Denham is the potential impact of increased housing close to the Brecklands SAC/SPA. Of particular note is the fact that the stone curlew population of Breckland SPA have been shown to be that highly

[29] Wilcove, D.S., McLellan, C.H. and Dobson, A.P., 1986. Habitat fragmentation in the temperate zone. *Conservation biology*, *6*, pp.237-256.
[30] English Nature (2002). *Lowland heathland a cultural and endangered landscape.* Northminster House: Peterborough
[31] Liley, D. and 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*(2), pp.219-230.
[32] 37 https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002531.pdf [accessed 26/01/21]
[33] Chace, J.F. and Walsh, J.J., 2006. Urban effects on native avifauna: a review. *Landscape and urban planning*, *74*(1), pp.46-69.
[34] Marzluff, J.M., 2001. Worldwide urbanization and its effects on birds. In *Avian ecology and conservation in an urbanizing world* (pp. 19-47). Springer, Boston, MA.

disturbance sensitive not just to recreation (dealt with above) but to the simple proximity of human habitation.

Table 3. Screening assessment (likely significant effect) of the BCDNP policies.

Policy number/name	Policy summary	Likely Significant Effects (LSEs) screening assessment
BCD1 – The spatial planning strategy	This policy confirms that strategic development will be centred in Barrow in accordance with the local plan. Outside of the settlement boundaries, priority will be given to protecting and enhancing the surrounding countryside. The policy provides criteria to which new developments will need to adhere to be supported.	No Likely Significant Effects. Development management policies do not present linking impact pathways and can be screened out from AA. Policy BCD1 does not specify a quantum or location of housing/employment development.
BCD2 – Strategic Site Allocation: Land at Barrow Hill	A combined site of 13.5 hectares is identified in Figure 4 (in the BCDNP) for delivery of: • A maximum of 165 homes; • Provision of a new care home • New employment facilities • Improvements to PRoW • Sustainable urban Drainage facilities to drain all surface water from the site • Enhanced new landscaping and greenspace • Contributions to improve health facilities • Contributions to improve education facilities • Contributions to improve community facilities	Potential for LSEs, screened in for AA. Policy BCD2 specifically allocates a site for development on Land at Barrow Hill. The allocation is for various uses, including 165 new homes and some employment space. Therefore, this policy has the potential to result in LSEs regarding the following impact pathways: • Urbanisation; • Recreational pressure; • Habitat fragmentation; • Air quality; • Water quality (surface water runoff); • Water quality (discharge of treated sewage effluent); and • Hydrological changes, including water abstraction.
BD3 – Non-Strategic Housing Delivery	In addition to the strategic development site (BCD3) the NP provides for small infill development, which: • Will not be expected to exceed five additional new homes; • Should be appropriate to its surroundings • Should not adversely impact existing amenities • Will satisfy the conditions of BCD7 and BCD8 of the NP • Should retain all healthy trees and hedgerows	Potential for LSEs, screened in for AA. Policy BCD3 allows windfall development within the NP boundaries at (as yet) unidentified sites. Therefore, this policy has the potential to result in LSEs regarding the following impact pathways: • Urbanisation; • Recreational pressure;

Policy number/name	Policy summary	Likely Significant Effects (LSEs) screening assessment
		• Habitat fragmentation; • Air quality; • Water quality (surface water runoff); • Water quality (discharge of treated sewage effluent); and • Hydrological changes, including water abstraction.
BCD4 – Special Needs and Local Affordable Housing	New development needs to meet special housing needs, including accommodation for the elderly and/or vulnerable groups. Outside of the Settlement Boundaries of Barrow and Bunthorpe, will be considered on their individual merits, subject to meeting relevant criteria.	Potential for LSEs, screened in for AA. Policy BCD4 allows windfall development of specialist housing within the NP boundaries at (as yet) unidentified sites. Therefore, this policy has the potential to result in LSEs regarding the following impact pathways: • Urbanisation; • Recreational pressure; • Habitat fragmentation; • Air quality; • Water quality (surface water runoff); • Water quality (discharge of treated sewage effluent); and • Hydrological changes, including water abstraction.
BCD5 – New Development and High-Quality Design	This policy specifies that proposals for all new development should demonstrate high design standards and provides design guidance in this regard.	No Likely Significant Effects This development management policy does not present linking impact pathways and can, therefore, be screened out from AA.
BCD6 – Suitable Design and Construction	This policy specifies that proposals for all new development should demonstrate high sustainability and energy conservation standards and provides design guidance in this regard.	No Likely Significant Effects This development management policy does not present linking impact pathways and can, therefore, be screened out from AA.

Policy number/name	Policy summary	Likely Significant Effects (LSEs) screening assessment
BCD7 – Local Employment Strategy	This policy offers support for the retention of small businesses. It provides ongoing support for the allocations for employment sites designated in the Rural Plan 2031 (RV4 and RV10) and employment allocations within policy BCD2	Potential for LSEs, screened in for AA. Policy BCD7 allow for the development of employment space within the NP boundaries at allocated sites as well as for suitable windfall development. Therefore, this policy has the potential to result in LSEs regarding the following impact pathways: • Air quality; • Water quality (surface water runoff);
BCD8 – Support for New and Existing Communities	This policy offers generic support for the provision of new or expansion of existing community facilities and provides further guidance in this regard.	No Likely Significant Effects. No quantum or location of development is included. This development management policy does not present linking impact pathways and can, therefore, be screened out from AA.
BCD9 – Support for New Sport and Recreation Facilities	This policy offers generic support for proposals providing larger-scale sporting and recreational facilities and provides further guidance in this regard.	No Likely Significant Effects. No quantum or location of development is included. This development management policy does not present linking impact pathways and can, therefore, be screened out from AA. No quantum or location of development is included.
BCD 10 – Ecology and the Natural Environment	This policy ensures that new development proposals demonstrate no unacceptable net impacts upon the biodiversity and ecology of the natural environment and provides further guidance in this regard.	No Likely Significant Effects This development management policy does not present linking impact pathways and can, therefore, be screened out from AA.
BCD 11 – Protection of Local Heritage Assets	This policy seeks to safeguard local heritage assets and sets out the criteria for assessing proposals that may impact them.	No Likely Significant Effects. No quantum or location of development is included.

Policy number/name	Policy summary	Likely Significant Effects (LSEs) screening assessment
		This development management policy does not present linking impact pathways and can, therefore, be screened out from AA.

5. Appropriate Assessment

5.1 Introduction

5.1.1 The law does not prescribe how an AA should be undertaken or presented but that it must consider all impact pathways that were screened in, whether they are due to policies alone or in-combination with other projects and plans. The law does not require the alone and in-combination effects to be examined separately provided all effects are discussed.

5.1.2 By virtue of the small amount of growth the BCDNP specifies for Barrow-cum-Denham, the main impact pathways of concern to this HRA (water quality, air quality, recreational pressure, urbanisation, habitat fragmentation/impacts on functionally-linked land and hydrological changes including water abstraction) are inherently 'in combination' with neighbouring plans and projects. However, for completeness, potential impacts of the 165 net residential dwellings allocated within Barrow-cum-Denham Neighbourhood Plan area in isolation are also assessed.

5.1.3 The HRA screening exercise undertaken in Table 3 indicates three BCDNP housing policies (BCD2, BCD3, and BCD4) that may have likely significant effects on the Habitats sites due to urbanisation, recreational pressure, air quality, water quality, habitat fragmentation and hydrological changes (including water abstraction).

5.1.4 The HRA screening exercise undertaken in Table 3 indicates a further BCDNP employment policy (BCD7) which may have a likely significant effect on the Habitats sites due to air quality and water quality.

5.1.5 The following impact pathways are reviewed in this section:

- Air pollution: impact of nitrogen deposition;
- Habitat fragmentation / Impacts on Functionally linked land;
- Hydrological changes (including water abstraction);
- Recreational pressure;
- Water quality (surface water runoff);
- Water quality (discharge of treated sewage effluent); and
- Urbanisation.

5.2 Air pollution: impact of nitrogen deposition

5.2.1 Introduction

5.2.1 The main pollutants of concern for Habitat sites are oxides of nitrogen (NOx), ammonia (NH3) and sulphur dioxide (SO2). NOx can have a directly toxic effect upon vegetation. In addition, greater NOx or ammonia concentrations within the atmosphere will lead to greater nitrogen deposition rates to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can seriously deleteriously affect the quality of semi-natural, nitrogen-limited terrestrial habitats. Table 2 describes air pollutants' main sources and effects on habitats and species.

Table 4: Main sources and effects of air pollutants on habitats and species

Pollutant	Source	Effects on habitats and species
Acid deposition	SO_2, NO_x and ammonia all contribute to acid deposition. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased nitrogen emissions may cancel out any gains produced by reduced sulphur levels.	Acid rain can affect habitats and species through both wet (acid rain) and dry deposition. Some sites are more at risk than others, depending on soil type, bedrock geology, weathering rate, and buffering capacity.
Ammonia (NH_3)	Ammonia is released following the decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with the expansion in the number of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO2 and NOX emissions to produce fine ammonium (NH4+) containing aerosols that may be transferred much longer distances (and can, therefore, be a significant transboundary issue).	Adverse effects result from nitrogen deposition leading to eutrophication. 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. About one-quarter of the UK's emissions are from power stations.	Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) can lead to both soil and freshwater acidification. In addition, NO_x can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species.
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO_X and NH_3 emissions. These pollutants cause acidification (see also acid deposition) and eutrophication.	Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication due to its promotion of competitive and invasive species that can respond readily to elevated levels of N. 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 from NO_x and volatile organic compounds (VOCs). The combustion of fossil fuels mainly releases these. The increase in combustion of fossil fuels in the UK has led to a large increase in background ozone concentration, leading to an increased number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at the international level to reduce levels of the precursors that form ozone.	Concentrations of O_3 above 40 ppb can be toxic to humans and wildlife and can affect buildings. Increased ozone concentrations may also reduce the growth of agricultural crops, decrease forest production, and alter species composition in semi-natural plant communities.
Sulphur Dioxide SO_2	The main sources of SO2 emissions are electricity generation, industry, and domestic fuel combustion. They may also arise from shipping and increased atmospheric	Wet and dry deposition of SO_2 acidifies soils and freshwater and alters the species composition of plant and associated animal communities. The

concentrations in busy ports. Total SO_2 emissions have decreased substantially in the UK since the 1980s.

significance of impacts depends on deposition levels and soil buffering capacity.

5.2.2 Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require coal and oil combustion. Ammonia emissions are dominated by agriculture, with some chemical processes and vehicle exhausts also making notable contributions. As such, it is unlikely that material increases in SO2 emissions will be associated with Local Plans, although ammonia emissions may be associated with petrol cars and vans and their catalytic converters. The output of vehicle exhausts dominates NOx emissions. Within a 'typical' housing development, by far the largest contribution to NOx (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[35]. Emissions of NOx and ammonia could therefore be reasonably expected to increase due to greater vehicle use as an indirect effect of the Local Plan.

5.2.3 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 µgm-3; that for ammonia is either 3 µgm-3 (for general vegetation) or 1 µgm-3 (for lichens and bryophytes), and the threshold for sulphur dioxide is 20 µgm-3. In addition, ecological studies have determined 'Critical Loads'[36] of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH3) for key habitats within Habitat sites.

5.2.4 According to the Department of Transport's Transport Analysis Guidance, "Beyond 200 m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"[37] (Figure 2).

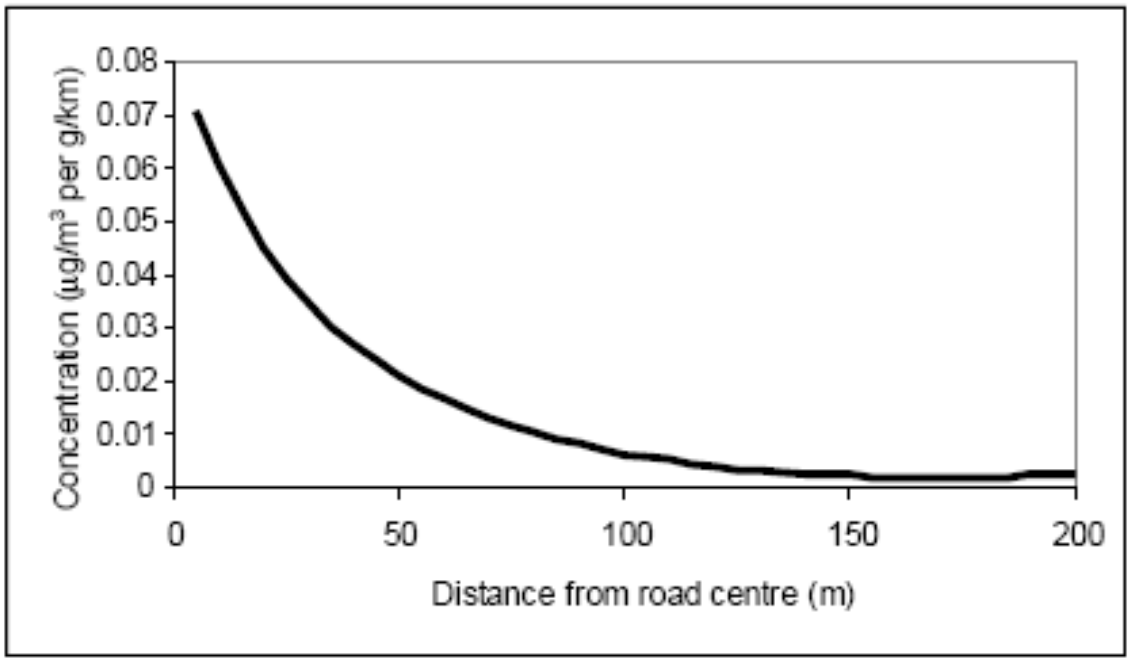

Figure 2. Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)

[35] 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
[36] The Critical Load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[37] www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

5.2.5 This is, therefore, the distance used throughout the HRA process to determine whether a Habitat site is likely to be significantly affected by development under a Plan.

5.2.6 The average UK car journey is approximately 10.6km[38]. At a 10km distance between the development site and any road within 200m of a vulnerable Habitat site, the traffic generated from that development is likely to have dispersed across the network such that it is unlikely to contribute to a statistically significant difference in annual average daily traffic. Therefore, a 10km buffer is utilised within this report to identify sites that may have a potential likely significant impact. Being within this 10km buffer does not necessarily mean there will be a likely significant effect, just that they will be assessed within the report to ascertain if they will contribute to a likely significant effect in combination.

5.2.7 Residential development within Barrow-cum-Denham Neighbourhood Plan area could decrease air quality through increased emissions from vehicle exhausts.

5.2.8 Air quality impacts of development plans are most appropriately tackled at the Local Plan level and impacts of air quality to Habitats sites within West Suffolk District were assessed in line with this. Traffic modelling and an air quality impact assessments were undertaken to inform the appropriate assessment of the WSDLP in line with the standard Design Manual for Roads and Bridges (DMRB) methodology.

5.2.9 This compared the predicted change in vehicle flows on roads within 200m of Breckland SAC and SPA as a result of the Local Plan development and in combination with neighbouring Local Plans, with that which would be expected to occur over time due to background population growth.

5.2.10 Findings, based on the HRA of the WSDLP and modelled results, are as follows:

5.2.2 Breckland SAC/SPA

5.2.11 At all points on all modelled transects, nitrogen deposition exceeds the critical load due to existing sources including both the road network and agriculture. This is common across much of the UK and as noted in Natural England guidance the simple fact that the critical load is already exceeded is not a basis to conclude that additional nitrogen will lead to an adverse effect on the integrity of the SACs or SPA.

5.2.12 The way in which the SPA birds utilise the modelled habitats, and the principal influences on habitat structure in those habitats are key to interpreting whether nitrogen deposition at Breckland SPA would affect its conservation objectives for stone curlew, nightjar or woodlark. Stone curlew in the Breckland SPA lives mainly in arable fields and in areas of short acid grassland. The former of these habitats (arable land) is not vulnerable to atmospheric nitrogen deposition since it is an artificial fertilised habitat. Two qualifying bird species in the Breckland SPA, the European nightjar and woodlark, partly depend on coniferous woodland in their life cycle. APIS identifies coniferous woodland as having a nitrogen critical load of 5-15 kg N/ha/yr but notes that the lowest part of the critical load range is only appropriate for native conifer woodland designated for its diverse lichen flora. A critical load of 10kgN/ha/yr is appropriate in other circumstances.

5.2.13 The main habitat used by nightjar and woodlark in Breckland SPA is a rotationally managed conifer plantation. Nightjar and woodlark do not nest in mature permanent woodland. This is relevant because much roadside habitat within this SPA (the roadside habitat being that which will be most affected by nitrogen deposition) constitutes permanent woodland. Nightjar probably will forage within permanent woodland, and it is possible that any net increase in nitrogen deposition might somewhat reduce the abundance of some invertebrates (such as moths) in that belt. However, nightjar does not have highly specialised foraging requirements, foraging in a wide range of common and widespread habitats well beyond the SPA wherever they can obtain a supply of insects of sufficient size, including heathland, plantation woodland, deciduous woodland, rough pasture, arable field margins and gardens.

[38] GOV.UK (2019). *Average number of trips made and distance travelled*. https://www.gov.uk/government/statistical-data-sets/nts01-average-number-of-trips-made-and-distance-travelled, accessed 13/03/2020

5.2.14 Research in Breckland Forest[39] has identified that, with regard to rotationally managed plantations, the amount of plantation in each growth stage and (for woodlark) the planting and restock period management regime (such as whether the area was de-stumped or ploughed, and factors such as brash cover and weed control) explain the vast majority of the recorded spatial and temporal variation in nightjar and woodlark abundance. Provided these aspects are appropriate, other factors such as nitrogen deposition are, therefore, less likely to influence the achievement of biodiversity objectives for these species in rotational forestry than they do in more natural habitats. Therefore, impacts on heathland/acid grassland are most relevant to consideration of whether the ability of the SPA to achieve its Conservation Objectives will be compromised by nitrogen deposition.

5.2.15 Mildenhall Road (A1101) has significant areas of acid grassland on either side of the road, which are part of Cavenham & Icklingham Heaths and part of both Breckland SAC and Breckland SPA. In combination nitrogen deposition is forecast to exceed 1% of the critical load throughout the 200m transect, being typically 2-3% of the critical load. However, the contribution of West Suffolk Local Plan is negligible, being 0.009 kgN/ha/yr (effectively zero) even at the roadside.

5.2.16 The A1065 has several areas of acid grassland and/or heathland alongside it which are all part of Breckland SAC and SPA, including Wangford Warren & Carr, RAF Lakenheath, Lakenheath Warren, and Foxhole Heath. These were all modelled. Foxhole Heath lies 190m from the A1065 at its closest, and at this distance, no impact alone or in combination is forecast. Areas of acid grassland and heathland at RAF Lakenheath, Lakenheath Warren and Wangford Warren & Carr lie much closer to the road but at no point in the modelled transect is 'in combination' nitrogen deposition forecast to exceed 1% of the critical load.

5.2.17 Therefore, it can be concluded that **no adverse effects on the integrity of the Breckland SAC and SPA are anticipated as a result of Air Pollution from increased development in Barrow-cum-Denham Neighbourhood Plan area.**

5.2.3 Rex Graham Reserve SAC

5.2.18 Modelling in the WSDLP for Rex Graham Reserve shows that the 'in combination' effect exceeds 1% of the critical load throughout the SAC, being a maximum of 5.8% of the critical load at the closest point to the road. However, even at the closest point to the road, the contribution of West Suffolk Local Plan growth is below 1% of the critical load, and the contribution of the BCDNP will, therefore, be lower than that.

5.2.19 A large net improvement in nitrogen deposition (more than 4 kgN/ha/yr) is still forecast at the SAC to 2040, even allowing for traffic growth. Without growth, an improvement of 4.67 kgN/ha/yr is forecast. Therefore, the West Suffolk Local Plan would slow this rate of improvement by just 5 months, which will not materially interfere with the site's ability to achieve its conservation objectives.

5.2.20 It can be concluded that **no adverse effects on the integrity of the Rex Graham Reserve SAC are anticipated as a result of Air Pollution from increased development in Barrow-cum-Denham Neighbourhood Plan area.**

5.2.4 Chippenham Fen SAC/Ramsar

5.2.21 Chippenham Fen Ramsar (part of Fenland SAC) is situated less than 1km outside of the district northeast of Newmarket. The site is not within 200m of any significant A road. An 80 m section of the Ramsar is located immediately adjacent to Palace Road a rural access road west of Chippenham village. However, within 200m of this road, the habitat is semi-improved grassland and not a designated feature of the Ramsar/SAC.

5.2.22 It can be concluded that **no adverse effects on the integrity of the Chippenham Fen SAC/Ramsar are anticipated as a result of Air Pollution from increased development in Barrow-cum-Denham Neighbourhood Plan area.**

[39] Probably the largest commercial plantation in England. Reference: Dolman, P. and Morrison, C. (2012). *Temporal change in territory density and habitat quality for Breckland Forest SSSI woodlark and nightjar populations*. Report to Forestry Commission and Natural England, number ENV103/11/19.

5.2.5 In-combination effects

5.2.23 All air quality modelling takes into account the WSDLP and other Local Plans, so the assessments above are de facto in-combination assessments.

5.3 Habitat fragmentation/impacts on functionally linked land

5.3.1 Introduction

5.3.1 As described in

5.3.2 Table 2, habitat fragmentation is the division of larger habitats into smaller patches and/or the loss of supporting habitat (otherwise referred to as a functional linkage in relation to Habitats sites) as a consequence of development.

5.3.3 Natural England's definition of functional linkage is: the role or 'function' that land or sea beyond the boundary of a Habitats site might fulfil in terms of supporting the populations for which the site was designated or classified. Therefore, such an area of land or sea is 'linked' to the site in question because it provides a (potentially important) role in maintaining or restoring a protected population at a favourable conservation status. Whilst areas beyond a site boundary might serve a function in respect of a designated habitat type, for example, by being linked hydrologically to the qualifying habitat, in the context of this report, functional linkage refers only to land which is linked to a qualifying species (whether an Annex II species for which a SAC has been designated, or a bird species for which a SPA has been classified).'

5.3.2 Breckland SAC/SPA

5.3.1 As previously described, parts of Barrow-cum-Denham Neighbourhood Plan area lie within the functional linkage zone of the Breckland SPA due to the presence of supporting habitat, within the parish.

5.3.2 The most detailed consideration of the link between the relative proximity of development to Habitat sites and damage to interest features has been carried out with regard to the Thames Basin Heaths SPA; a site designated for nightjar and woodlark, like parts of Breckland SPA. After extensive research on edge effects, Natural England and its partners produced the 'Thames Basin Heaths Special Protection Area Delivery Framework' which made recommendations for accommodating development while protecting the Habitat site's interest features. This included the recommendation of implementing a series of zones within which varying constraints would be placed upon development. Concerning aspects of urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats) were determined at 400m from the SPA boundary. The delivery plan concluded that the adverse effects of any development located within 400m of the SPA boundary could not be mitigated in part because this was the range over which cats and people could be expected to roam as a matter of routine, and there was no realistic way of restricting their movements, and as such, no new housing should be located within this zone with regards to the Thames Basin Heaths.

5.3.3 The findings of the Thames Basin Heaths research are relevant to the heathland and rotationally managed plantation woodland areas of Breckland, which are likely to suffer similar urban edge effects. Breckland SPA is designated for two of the same species (nightjar and woodlark). As with Thames Basin Heaths SPA, the Brecks authorities (West Suffolk District Council, Breckland District Council and the Borough of Kings Lynn & West Norfolk) have included a policy introducing a similar 400m buffer around those parts of Breckland SPA supporting nightjar and woodlark. This is in line with Natural England's advice in the Supplementary Advice on the Conservation Objectives for the SPA.

5.3.4 None of the proposed site allocations fall within the accepted 400m buffer zone of the SPA, which protects species such as nightjar or woodlark, nor do they involve the loss of heathland, acid grassland, or rotationally managed plantation, which would render them suitable nesting habitats for these species.

5.3.5 Stone curlew breed on short acid grassland, but in the Breckland SPA nest primarily within arable (vegetable) fields. As well as nesting within the SPA, it is known that a significant proportion of the Breckland SPA population of stone curlew nest in arable land outside the SPA boundaries. The land outside of the SPA which supports the SPA population of stone curlew e.g. nesting/roosting can be defined as 'functionally linked land' in that its preservation is integral to the SPA achieving its conservation objectives even though it lies outside the SPA boundary and must be taken into consideration when assessing if an adverse impact will occur upon the SPA.

5.3.6 To account for this population and the potential for disturbance of stone curlew nesting outside the SPA, a 1,500m buffer was introduced in 2009-10 around any 1km grid square with equal to or greater than five stone curlew nesting attempts since 1995 that were associated with the Breckland SPA population (e.g., within 3 km of the SPA boundary) to capture additional functionally linked land outside of the SPA. These buffers were reviewed in 2016 using nesting attempt data from between 2011 and 2015.

5.3.7 Loss and disturbance of functionally linked land through development or where development causes disturbance of a level which causes avoidance of land, will reduce the area of land outside the SPA, which is available to stone curlew for breeding, not only via direct land take but also through increased competition in the areas remaining and then through greater urbanisation effects, e.g. the increased disturbance of adjacent suitable functionally linked land.

5.3.8 At the screening stage no allocation sites were identified as lying within 1,500m of the SPA or within the '1500m buffer from 1km cells outside the SPA'[40]. However, all of the site allocations proposed by the Council lie at least partially within the 1km cells, which indicates that the habitat is suitable for stone curlew, but insufficient data exists on stone curlew presence to establish if this constitutes functionally-linked habitat. As such, there is a potential risk to stone curlews from these development allocations, subject to the results of the survey.

5.3.9 Given that parts of Barrow-cum-Denham Neighbourhood Plan area have been identified to potentially support suitable habitat for stone curlew, and that the SPA supports over 70% of the breeding population of the species, it is very important that development is sensitive to this protected species[23] [24].

5.3.10 Development on hese site allocations will therefore require project-level HRA before they can be consented, or before reserved matters applications can be consented, and may need to deliver offsetting for displacement of stone curlew from nesting habitat outside the SPA boundary. In the Regulation 18 WSDLP HRA, it was recommended that within the Local Plan a policy is included for the protection of Breckland SPA through the continued retention of the 1,500m constraint buffer around the areas of the SPA designated for stone curlew and any 1 km grid square where there are five or more attempts at breeding by stone curlew.

5.3.11 This has been reflected in Policy SP7 (Breckland Special Protection Area and Special Area of Conservation), which states that "*…All development that leads to a net increase in built development within the 1.5km (secondary) buffer around areas outside the SPA that have been identified where there are concentrations of stone curlew (most recently using data from 2011-2015), as shown on the policies map may also require project level HRA. All development that leads to a net increase in built development within the 1500 metre (secondary) buffer around areas outside the SPA that have been identified where there are concentrations of stone curlew (most recently using data from 2011 to 2015), as shown on the policies map may also require project level HRA. Within this zone, where it can be shown that adverse effects can be prevented, for example, where alternative land outside the SPA can be secured to adequately mitigate the potential effects, planning permission may be granted provided the local planning authority is satisfied that there is sufficient certainty that the proposed measures will be effective and deliverable.*" The same policy would apply to any windfall development that may come forward as a consequence of other policies in the Local Plan.

5.3.12 Future unallocated windfall is a possibility but development in Barrow-cum-Denham must comply with Policy SP7 (Special Protection Areas and Special Areas of Conservation) in the WSDLP.

[40] Liley and Hosking (2017) Breckland Local Plan Habitats Regulations Assessment at Publication Stage Available at https://www.breckland.gov.uk/media/7400/LP-S-4-Habitats-Regulations-Assessment/pdf/LP_S_4_Habitats_Regulations_Assessment.pdf?m=1700737025220 [Accessed August 2024]

5.3.13 It is recommended that Policies BCD3 and BCD4 be amended to make specific reference to the WSDLP Policy SP7 and the need to comply with it. Should this recommendation be adopted, it can be concluded that the Barrow-cum-Denham NP complies with the WSDLP. **Therefore, no adverse effects on the integrity of Breckland SPA are anticipated as a result of Habitat fragmentation or loss of functionally linked land from increased residential development in Barrow-cum-Denham Neighbourhood Plan area.**

5.3.3 In combination effects

5.3.14 Three other local authorities could potentially see development coming forward within 1.5km of stone curlew regular nesting attempt locations outside the SPA boundary: East Cambridgeshire, the Borough of Kings Lynn & West Norfolk, and Breckland District.

5.3.15 Within East Cambridgeshire, there is a Garden Village extension to Kennett that is not in their Local Plan but is an "*incomplete or non-implemented part of plans or projects that have already commenced"* although no homes have been provided to date. The site is in the secondary buffer within 1.5km of a location with five or more nesting attempts by stone curlew. It is covered by outline permission 18/00752/ESO and was accompanied by an HRA screening report. The applicant undertook breeding bird surveys and concluded that although within a grid square where insufficient knowledge existed at a Local Plan level about stone curlew nesting, the species did not, in fact, nest in the area. Nightjar and woodlark were also not nesting near the site.

5.3.16 The adopted Kings Lynn & West Norfolk Site Allocations and Development Management Policies Plan (2016) (SADMP) does not specifically discuss the SPA secondary buffer. However, the HRA of the Local Plan Review (going through Examination) does do so, noting that "*In order to avoid impacts of built development on Stone Curlews, the Local Plan Policy LP27 includes the following wording: New built development will be restricted within 1,500m of the Breckland SPA. Development will be restricted to the re-use of existing buildings or where existing development completely masks the new proposal from the Breckland SPA. Beyond the SPA, a 1,500m buffer will also be applied to areas where the qualifying features are known to exist, or where nesting attempts have been made. In this area, development may be acceptable where suitable alternative habitat (outside the SPA) can be secured*". The HRA also notes that "*checks beyond the buffer indicate no allocations at sites in a wider arc where birds may be present outside the SPA boundary"*.

5.3.17 The HRA of the Breckland Local Plan (adopted 2023) notes that numerous settlements in Breckland district lie within 1500m of parts of the SPA that support stone curlew, or within 1500m of historic nesting attempts beyond the SPA, such as Swaffham, Watton and Weeting but also notes the existence of the 1500m secondary buffer and notes that the Local Plan (Policy ENV03) "*does not support development outside settlement boundaries within the 1500m buffer zone. Outside this, there may be a need for project level HRA to ensure that there any effects on functionally linked land can be effectively mitigated for*". The HRA also notes that growth at Thetford is covered by the adopted Thetford Area Action Plan and that '*Thetford SUE has outline permission but S106 not yet agreed, partly due to outstanding mitigation requirements for Breckland SPA'*.

5.3.18 According to the applicant's HRA report for the Development Consent Order application submitted for the Sunnica Energy Farm project, impacts on Breckland SPA were identified through loss of stone curlew nesting and foraging habitat outside the SPA boundary, and construction noise and visual disturbance to stone curlew occurring within or outside the designated site boundary during construction. To address these issues, the applicant proposes a Construction Environment Management Plan and a Decommissioning Environment Management Plan containing mitigation measures for construction disturbance, and the delivery of habitat to offset the loss of breeding habitat for stone curlew.

5.3.19 **The previously discussed project level HRAs which will be required for developments in respect of this impact pathway must consider the above plans.**

5.4 Hydrological changes (including water abstraction)

5.4.1 Introduction

5.4.1 Water abstraction reduces flow in rivers and streams, lowers groundwater levels and potentially depletes aquifers. Impacts potentially occur where the interest features are aquatic or depend on water. However, the issue of water abstraction is better served at the Local Plan level in collaboration with water companies and the Environment Agency.

5.4.2 Chippenham Fen SAC

5.4.2 The Environment Agency catchment explorer tool demonstrates that Chippenham Fen SAC is outside the surface water catchment for the Lark catchment area, which contains Barrow-cum-Denham NP area, indicating that there is no hydrological connectivity between the parishes and the Chippenham Fen SAC.

5.4.3 Therefore, adverse effects from hydrological changes, including water abstraction for public water supply alone and in-combination, on the integrity of the **Chippenham Fen SAC site as a result of the Barrow-cum-Denham Neighbourhood Plan area can be reasonably dismissed.**

5.4.3 Breckland SAC/SPA

5.4.4 The Habitats Regulations Assessment undertaken for the Anglian Water Draft Water Resources Management Plan (WRMP) (December 2019) concluded that because the qualifying features of the Breckland SPA are not listed as sensitive to changes in water levels and flow, there would be no adverse effects on the integrity of the Breckland SPA as a result of the delivery of the WRMP.

5.4.5 Since the purpose of the WRMP is to set out how the water company intends to meet public water supply requirements up to 2045, it covers the period of the West Suffolk District Local Plan and the Barrow-cum-Denham NP.

5.4.6 Therefore, adverse effects from hydrological changes including water abstraction for public water supply alone and in-combination, on the integrity of the **Breckland SAC/SPA site as a result of the Barrow-cum-Denham Neighbourhood Plan area can be reasonable dismissed.**

5.4.4 In combination effects

5.4.7 As there are no adverse effects alone, **there are no in combination effects as a result of hydrological changes.**

5.5 Recreational pressure

5.5.1 Introduction

5.5.1 There is growing concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfil conservation objectives while also providing recreational opportunities. Various research reports have provided compelling links between changes in housing and access levels and impacts on Habitats sites[41] [42]. This applies to any habitat, but the additional recreational pressure from housing growth on destinations with water features is likely to be especially strong, and some of the qualifying waterfowl are known to be susceptible to disturbance. Different Habitats sites are subject to different types of recreational pressures and have different vulnerabilities.

[41] 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.
[42] 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.

Studies across a range of species have shown that the effects of recreation can be complex. HRAs of Plans tend to focus on recreational sources of disturbance as a result of new residents[43].

5.5.2 Human activity can affect organisms directly (e.g. loss of habitat or by causing species to flee) and indirectly (e.g. by damaging their habitat or reducing their fitness in less obvious ways e.g. stress). The most obvious direct effect is the loss of habitat as a result of increased visitors to a site (i.e. trampling). But human activity can also lead to much subtler behaviour (e.g. alterations in feeding behaviour, avoidance of certain areas and use of sub-optimal areas etc.) and physiologic changes to species (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[44].

5.5.3 At the screening stage (

5.5.4 Table 2), two Habitats sites were identified that could be impacted by recreational pressure. These were the Breckland SAC and the Breckland SPA.

5.5.2 Breckland SAC/SPA

5.5.5 Visitor survey work undertaken to inform the development of the WSDLP identified that Breckland SPA and SAC are recreationally sensitive, with a core catchment of 26.3km, which covers the entirety of the BCDNP area.

5.5.6 With regards to the Breckland SAC, increased pressures due to growth in the district may present an adverse effect in the future. Visitor survey work undertaken to prepare the emerging Recreational and impact Avoidance and Mitigation Strategy (RAMS) The study confirms that contamination (from dogs in particular and including dog fouling and contamination of water bodies from dogs entering the water), trampling, increased fire risk, spread of non-native species and disease, and disturbance to rabbits are all current issues that are likely to get worse without mitigation. Large residential sites located within easy walking distance of the SAC are disproportionately likely to contribute to recreational pressure effects.

5.5.7 Therefore, a 1km buffer (this being a common zone for easy walking distance) has been used in this HRA around the components of the Breckland SAC to identify potential development sites with 50 or more dwellings. No site allocations within the BCDNP fall within this buffer.

5.5.8 Key issues for Breckland SPA are identified in the emerging RAMS Study are disturbance to ground-nesting birds, impacts on rabbits affecting habitat, increased fire risk, and nutrient enrichment impacting habitat quality. Disturbance to birds has been discussed in the impact pathway section of this HRA including the evidence of high susceptibility to disturbance of nightjar, woodlark and stone curlew. Nutrient enrichment due to dogs was also discussed in that section, including a study into the amount of nitrogen entering Burnham Beeches in south-east England from dogs. Rabbits are key to maintaining short sward and bare ground patches, and a decline in rabbit population due to disease has had a marked impact on the vegetation within Breckland. Access, particularly dogs, is identified in the emerging RAMS SPD as potentially part of the problem.

5.5.9 Mitigation for recreational impacts on Habitats sites has a long precedent and usually consists of the following:

- Delivery of alternative natural greenspace, specifically intended to attract people away from the Habitats sites by replicating the recreationally attractive qualities of the habitat (though not necessarily the same habitats) and providing a tranquil and well-publicised alternative recreational experience. The most formalised approach is commonly known as Suitable Alternative Natural Greenspace (SANG) and consists of a series of precise criteria (such as a set amount of greenspace per 1000 population) that must be created. However, this is not the only approach available and less rigidly defined forms of alternative greenspace have also been used. It is common for large sites to deliver their own alternative greenspace while small sites

[43] 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'.
[44] Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

make financial payments to a central body (such as West Suffolk Council) based on agreed per dwelling tariff, and the central body delivers the greenspace or projects to enhance access provision. The tariff must be sufficient to manage the site in perpetuity); and

- Direct input to access management of the Habitats sites in question, on the basis that there is still likely to be some increase in recreational visits over the plan period, and improved site management can improve the resilience of the site to recreation. Actual measures cover a wide range but can include improved wardening, signage, community engagement, specific on-site infrastructure (e.g., formalising car parking where informal car parking is causing damage), improving board walks, creating hides, closing footpaths or adding dog waste bins. This is usually achieved by the developer paying an agreed per dwelling tariff to the delivery body (such as West Suffolk Council) who then supervise the measures. The tariff must be sufficient to manage the site in perpetuity.

5.5.10 West Suffolk Council is currently producing a Recreational Avoidance and Mitigation framework (title still to be fixed), assisted by specialist consultancy Footprint Ecology.

5.5.11 The need for recreational pressure mitigation at a strategic level is covered in the WSDLP by Policy SP8 (Recreational effects of development). This states that '*All new development which would result in a net increase in dwellings and therefore likely to increase recreational pressure on any European* (Habitats) *or nationally designated site, will be required to demonstrate that adequate measures are put in place to avoid or mitigate potential adverse effects.*

5.5.12 *In all instances where recreational mitigation measures are applicable, as set out in the West Suffolk Recreational Avoidance and Mitigation, the following standards will apply, unless an evidence-based alternative strategy has been agreed with Natural England and the council:*

- Provide measures for influencing recreation at, or close to the development site. Measures could include delivery of sufficient quantity and quality of alternative accessible natural green space and/or enhancement and promotion of dog-friendly access routes within or in the immediate vicinity of the development or other measures to be agreed. For small developments, a financial contribution towards strategic measures may be accepted.

- An appropriate financial contribution towards recreational access management and monitoring of visitor pressure at sensitive nature conservation sites.

5.5.13 *A project-level Habitats Regulations Assessment (HRA) will be required. The developer is required to submit information that clearly demonstrates that the above measures would result in no adverse effects on the integrity of the relevant European* (Habitats) *site'.*

5.5.14 It is recommended that Policies BCD2, BCD3, and BCD4 be amended to specifically reference compliance with the WSDLP policy SP8 and any requirements of a future West Suffolk Recreational Avoidance and Mitigation Study.

5.5.15 Should this recommendation be adopted, it can be concluded that the Barrow-cum-Denham NP complies with the WSDLP. **Therefore, no adverse effects on the integrity of Breckland SPA are anticipated due to recreational pressure from increased development in Barrow-cum-Denham Neighbourhood Plan area.**

5.5.3 In Combination Effects

5.5.16 A visitor survey across Norfolk was undertaken by Footprint Ecology during 2015 and 2016[45]. The results highlighted how an increase in recreational pressure (particularly at the North Coast, the Brecks, the Broads and the Valley Fens) is predicted to be linked with residential development across multiple local authorities. The result was a recreational pressure Zone of Influence covering the whole of Norfolk. As a result, they have prepared a GIRAMS (Green Infrastructure (GI) and Recreational Impact Avoidance and Mitigation Strategy). The Breckland SPA/SAC catchment in Norfolk is set at 26km in Table 6 of the GIRAMS and is identified to cover the entirety of Kings Lynn & West Norfolk,

[45] https://www.north-norfolk.gov.uk/media/3382/visitor-surveys-at-european-protection-sites-2015-16.pdf

Breckland, and parts of North Norfolk and South Norfolk. Therefore, this covers at least 23,000 new dwellings within the catchment of the SPA/SAC in addition to that planned for West Suffolk.

5.5.17 The Norfolk GIRAMS sets out a strategic, cross-boundary approach to mitigating the in-combination effects of development on these designated areas and allows strategic mitigation to be delivered across Norfolk. The avoidance and mitigation measures will be funded via developer contributions as part of planning permissions given for new residential and other development as follows: All new dwellings of 1+ units in current site allocations and windfall (excludes replacement dwellings and extensions)

- Houses in Multiple Occupancy e.g. hotels, guest houses and lodges
- Student accommodation
- Residential care homes and residential institutions (excludes nursing homes)
- Residential caravan sites/mobile homes/park homes
- Gypsies, travellers and travelling show people plots
- Residential moorings, holiday caravans, touring pitches and campsites

5.5.18 Growth is also occurring within 26.3 km of Breckland SPA/SAC in parts of East Cambridgeshire, South Cambridgeshire, Mid Suffolk, and Babergh. **As yet, these Local Plans have no specific policy regarding the SAC/SPA and recreational pressure because the catchment has only recently been increased to 23.6km.**

5.6 Water quality: Surface water runoff

5.6.1 Introduction

5.6.1 The quality of the water that feeds Habitats sites is an important determinant of the nature of their habitats and the species they support[46]Rivers, streams, and aquatic environments supported by or fed by these sites can be affected by pollution from road run-off, such as oil and vehicle chemicals. In the winter, increased salt from de-icing the roads and pollution incident(s) can also affect them.

5.6.2 In areas of excavation (i.e., construction activities), spills/ leaks of fuel, oil, and/or sediment could increase the risk to groundwater resources.

5.6.3 Poor water quality can have a range of environmental impacts. At high levels, toxic chemicals and metals can result in the immediate death of aquatic life. At lower levels, detrimental effects can also be experienced, including increased vulnerability to disease and changes in wildlife behaviour[47].

5.6.4 The impacts of poor water quality entering Habitats sites can have far-reaching consequences similar to air quality. For example:

- At high levels, toxic chemicals and metals can result in the 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,

[46] Johnson, W.W. and Finley, M.T., 1980. *Handbook of acute toxicity of chemicals to fish and aquatic invertebrates: Summaries of toxicity tests conducted at Columbia National Fisheries Research Laboratory, 1965-78* (No. 137). US Fish and Wildlife Service.
[47] Poulin, R., 1992. Toxic pollution and parasitism in freshwater fish. *Parasitology Today*, *8*(2), pp.58-61.

nitrogen is the limiting plant nutrient, and so eutrophication is associated with discharges containing available nitrogen48 49.

- 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.

5.6.2 Breckland SPA and SAC

5.6.5 As the Parish boundary is within 10m of the Breckland SPA and SAC boundary, there is a risk that inappropriate land conversion to hardstanding and poor drainage could lead to contaminated runoff, causing an excessive build-up of nutrients within the site. Additionally, St Edmundsbury Rural Vision 2031 states "*The heavy soils in and around Barrow make the area susceptible to surface water flooding, demonstrated by the number of ponds around the village. This will need to be considered when future sites are developed but is an obstacle that can be overcome*."

5.6.6 The Breckland SPA/SAC supports the habitat 'Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition'*. In the UK, natural eutrophic lakes typically contain aquatic macrophyte communities dominated by pondweeds (*Potamogeton* species), spiked watermilfoil (*Myriophyllum spicatum*), yellow water-lily (*Nuphar lutea*), and occasionally by associations of stoneworts (species of *Chara* and *Nitella*) Except in the most northerly areas, many eutrophic lakes are fringed by reedmace – common reed (*Scirpo – Phragmitetum*) associations.

5.6.7 Naturally, this habitat type is higher in nutrient levels (i.e. nitrogen) when compared to other lake habitats, resulting in a higher natural productivity, and is typically species-rich. However, many such lakes have been damaged by over-enrichment with nutrients, resulting in hypertrophic conditions and a net reduction in species richness. Natural England's site improvement plan for Breckland SAC/SPA highlights that water pollution is a current threat to the integrity of the site. Nutrient-enriched water and/or contaminated water may leach into the SAC and degrade habitats.

5.6.8 Cavenham Stream runs through the Barrow-cum-Denham Neighbourhood Plan area and extends north into the Breckland SPA. According to the Environment Agency, this river is categorised as Flood Zone 3 meaning it has 1% or greater annual probability of flooding. This river joins the river Lark, which then extends through the Breckland SAC, meaning they are hydrologically connected. The movement of contaminated water through this system could occur in-combination with surrounding parishes during times of flooding.

5.6.9 The Breckland SPA's interest features are not listed as vulnerable to water pollution effects within the SIP indicating that they are not water quality-dependent.

5.6.10 West Suffolk Council published a revised flood risk management strategy following the 2009 Water Cycle Study (WCS) conducted by the Forest Heath District Council and St Edmundsbury Council, which identified the aforementioned surface water pathway between Barrow or Denham and Breckland SAC and SPA.

5.6.11 Considering the above, it is evident from a review of the Breckland SAC SIP, scientific research and previous HRA/WCS that surface water runoff is a potential issue for Habitats sites within the zone of influence for surface water runoff from Barrow-cum-Denham Neighbourhood Plan area. Preventing further surface water runoff and flood risk within the parish can be mitigated using high-quality drainage design that prevents surface water from entering environmentally sensitive areas. This is mentioned in the Suffolk Flood Risk Management Strategy, which encourages the use of Sustainable Drainage Systems (SuDS) features in new development[50]. The Strategy document highlights the responsibility of Local Authorities to take an active role in ensuring that flood risk is not exacerbated by new development.

5.6.12 Policy SP1 in the WSDLP requires that all types of development must include measures for "*the use of sustainable drainage systems to help avoid and reduce the risk of flooding.*", "*contribute to improving*

[48] Rabalais, N.N., 2002. Nitrogen in aquatic ecosystems. *AMBIO: A Journal of the Human Environment*, *31*(2), pp.102-113.
[49] Howarth, R.W. and Marino, R., 2006. Nitrogen as the limiting nutrient for eutrophication in coastal marine ecosystems: evolving views over three decades. *Limnology and Oceanography*, *51*(1part2), pp.364-376.
[50] https://democracy.westsuffolk.gov.uk/documents/s13977/CAB.FH.16.020%20Appendix%20-%20Revised%20Suffolk%20Flood%20Risk%20Management%20Strategy%20SFRMS.pdf [accessed 26/01/21]

the water quality of rivers and groundwater in West Suffolk" and include "*the use of higher water efficiency standards to ensure sustainable use of water resources across new developments including integrated water management measures*".

5.6.13 Policy BCD2 in the BCDNP includes the requirement that for all types of development "*All surface water from the Site to be drained via Sustainable Urban Drainage* [Systems] *(SuDS) facilities located within the allocated area*".

5.6.14 Policy BCD10 in the BCDNP states that developments "*are expected to protect local habitats and species, especially those covered by relevant legislation*".

5.6.15 Future unallocated windfall is a possibility but development in Barrow-cum-Denham must comply with Policy SP7 (Special Protection Areas and Special Areas of Conservation) in the WSDLP. Policy SP7 states that "*A project-level Habitats Regulations Assessment (HRA) will be undertaken for all development proposals that are likely to have a significant effect on a Special Protection Area (SPA) or Special Area of Conservation (SAC).*" and "*Development will only be permitted where it can be demonstrated that the proposals will not adversely affect the integrity of the designated site, either alone or in combination with other plans or projects.*".

5.6.16 It is recommended that Policies BCD3 and BCD4 be amended to specifically reference the WSDLP Policy SP7 and the need to comply with it.

5.6.17 Should this recommendation be adopted, it can be concluded that the Barrow-cum-Denham NP complies with the WSDLP. **Therefore, no adverse effects on the integrity of Breckland SPA are anticipated due to Water quality: surface water runoff from increased residential development in Barrow-cum-Denham Neighbourhood Plan area.**

5.6.3 In combination effects

5.6.18 Following consultation between Anglian Water and the West Suffolk Council, the WSDLP HRA identified that three water recycling centres will fail their Dry Weather Flow (DWF) will fail there planning consents in the planning period based on the current development trajectory. However, none of the identified WRCs are connected to water quality sensitive Habitats sites. As the WSDLP encompasses both the developments in the BCDNP and those in neighbouring areas, **it can therefore be concluded that there will be no adverse effects on the integrity of any Habitats sites, either alone or in combination with other plans or projects.**

5.7 Water quality: Discharge of treated sewage effluent

5.7.1 Discussion

5.7.1 It has been noted that Barrow WwTW has very little water supplyheadroom available to accommodate increased residential development in Barrow-cum-Denham Neighbourhood Plan area. The St. Edmundsbury Rural Vision 2031 states; "*Therefore, there will be a need for additional water infrastructure and or treatment upgrades to support new development in the village."*

5.7.2 Following review of the Regulation 18 West Suffolk District Local Plan HRA, West Suffolk Council have been liaising with Anglian Water Services (AWS). This process has identified issues with three Water Recycling Centres (WRC) located at Haverhill, Tuddenham (for Red Lodge) and Withersfield. These will fail their Dry Weather Flow (DWF) consents in the plan period based on the current development trajectory, although all three WRC can accommodate at least 50% of planned growth within the plan period before they fall within 10% of the DWF consent limit. Anglian Water Services (AWS) have been consulted and provided some potential solutions including. This study did not highlight any issues with the Barrow WwTW.

5.7.3 The Anglian Water Drainage and Wastewater Management Plan[51] (DWMP) sets out the plan for wastewater management in the region which includes the catchment for the Habitats sites identified in Table 1. It is the water companies' responsibility to meet the area's needs without adverse effects.

[51] Available at: https://www.anglianwater.co.uk/SysSiteAssets/household/about-us/dwmp/dwmp-1.pdf [Accessed 21/06/2024].

The DWMP must be subject to HRA and cannot be adopted with adverse effects on the integrity of Habitats sites unless subsequent derogation tests can be passed. Subsequent Environment Agency permitting processes also ensure adherence to the requirement to prevent detrimental impacts on Habitats sites.

5.7.4 It is recommended that Policies BCD3 and BCD4 be amended to specifically reference the WSDLP Policy SP7 and the need to comply with it. Should this recommendation be adopted it can be concluded that the Barrow-cum-Denham NP complies the WSDLP. **Therefore, no adverse effects on the integrity of Breckland SPA are anticipated due to urbanisation from increased residential development in Barrow-cum-Denham Neighbourhood Plan area.**

5.7.2 In combination effects

5.7.5 The Anglian Water DWMP adopted in 2023 sets out the long-term wastewater treatment requirements (to 2050) within the Anglian Water supply area based on robust population projections. While the HRA for the DWMP has not been made public, it was undertaken as a statutory requirement prior to the adoption of the DWMP. That includes taking account of nutrient neutrality considerations for Habitats sites (explicitly discussed in the DWMP). Since the DWMP cannot be adopted unless it demonstrates that it will not have an adverse effect on the integrity of Habitats sites, **it can be concluded that no in-combination treated wastewater issues arise in combination with the BCDNP.**

5.8 Urbanisation

5.8.1 Introduction

5.8.1 Urbanisation is essentially the encroaching of settlements onto open space to such an extent that there is a regular background level of impact (whether recreational activity, cat predation, fly-tipping or garden waste and other activities) due to the close proximity of large amounts of housing. This can have a negative effect on wildlife, causing retreat further into the body of a habitat; it can also impact breeding success and result in habitat fragmentation and changes in plant communities.

5.8.2 For example, in the area around the Thames Basin Heaths SPA, there is a prohibition on delivering net new residential development within 400m of the SPA because of the large amount of housing that might otherwise be delivered due to the urban nature of those heaths. This is largely due to the extreme difficulty that exists in mitigating the effects of large amounts of housing on the nightjar and woodlark populations of the SPA at such close distances.

5.8.2 Breckland SPA and SAC

5.8.3 The stone curlew is the most urbanisation-sensitive species for which Breckland SPA is designated. Research has shown that the presence of new development up to 1,500m from stone curlew nests can depress nesting success.[52] [53]

5.8.4 The plan level HRA for the Breckland District Council Local Plan[54] identifies:

- 1,500m buffer zones from the edge of those parts of the SPA that support, or can support, stone curlew;
- 1,500m buffer zones around identified areas which are functionally linked to supporting stone curlew; and
- The identification of a 400m buffer zone from the edge of those parts of the SPA that support or are capable of supporting nightjar or woodlark.

[52] Sharp, J., Clarke, R. T., Liley, D. & & Green, R. E. (2008). The effect of housing development and roads on the distribution of stone curlews in the Brecks. Unpublished report, Footprint Ecology, Wareham, Dorset.
[53] Clarke, R., & Liley, D. (2013). Further assessments of the relationship between buildings and stone curlew distribution. Unpublished report by Footprint Ecology for Breckland Council
[54] https://www.breckland.gov.uk/media/16659/Adopted-Breckland-Local-Plan/pdf/Appendix_4_-_Breckland_District_Council_Local_Plan.pdf?m=1704795365193 [Accessed [26 July 2024]

5.8.5 At the closest distance (10m) to the Breckland SPA boundary, Barrow-cum-Denham Neighbourhood Plan area is well within both buffer zones as specified in the Breckland District Council Local Plan[55]. However, the site allocations in Policy BCD2 are located 2.9km or more south of the SPA buffer and are, therefore, beyond the buffer zone.

5.8.6 Future unallocated windfall is a possibility but development in Barrow-cum-Denham must comply with Policy SP7 (Special Protection Areas and Special Areas of Conservation) in the WSDLP. Policy SP7 states that '*…All development that leads to a net increase in built development within Breckland SPA or within a 1.5km (primary) buffer of component parts of Breckland SPA which support or are capable of supporting stone curlew, as shown on the policies map, has the potential for Likely Significant Effects on Breckland SPA alone or in-combination with other developments, and as such will require a project-level HRA.*' It also states that *'Large developments adjacent to, or just outside the primary or secondary buffer are also likely to require project-level HRA*' and that '*All development that leads to a net increase in residential development within 400 metres of components of the SPA that support or are capable of supporting woodlark and/or nightjar as shown on the policies map, has the potential for Likely Significant Effects on Breckland SPA alone or in-combination with other developments, and as such will require project-level HRA. ... The developer is required to submit information to inform the HRA. The information must address the impact of the proposals alone and in-combination with other relevant plans and projects within the whole SPA and its relevant constraint zones where appropriate.*'.

5.8.7 It is recommended that Policies BCD3 and BCD4 be amended to specifically reference the WSDLP Policy SP7 and the need to comply with it. Should this recommendation be adopted it can be concluded that the Barrow-cum-Denham NP complies with the WSDLP. **Therefore, no adverse effects on the integrity of Breckland SPA are anticipated due to urbanisation from increased residential development in Barrow-cum-Denham Neighbourhood Plan area.**

[55] https://www.breckland.gov.uk/media/16659/Adopted-Breckland-Local-Plan/pdf/Appendix_4_-_Breckland_District_Council_Local_Plan.pdf?m=1704795365193 [Accessed [26 July 2024]

6. Conclusions

6.1.1 This assessment undertook both Screening and Appropriate Assessment of the policies and proposed site allocations of the BCDNP.

6.1.2 The Habitats sites, considered within the Appropriate Assessment for impact pathways that could not be screened out at the screening stage were:

- Breckland SAC, SPA;
- Chippenham Fen SAC; and
- Rex Graham Reserve SAC.

6.1.3 Impact pathways considered during the screening were:

- urbanisation
- habitat fragmentation/loss of functionally linked land;
- recreational pressure;
- water quality;
- water quantity, level and flow; and
- air pollution.

6.1.4 Three policies (BD2 – BD4) providing net new residential development and two policies (BCD 2 and BCD7) providing net new employment space were subject to Appropriate Assessment as they were located within the accepted zones of influence of the aforementioned Habitats sites and could result in adverse effects on the integrity of an international site in combination with other projects and plans.

6.1.5 Following Appropriate Assessment, two recommendations were made to improve the policy framework provided in the BCDNP:

- It is recommended that Policy BCD2, Policy BCD3 and Policy BCD4 are updated to include a requirement for applicants to adhere to policy SP7 of the WSDLP.
- It is recommended that Policies BCD2, BCD3 and BCD4 are amended specifically reference complying with the WSDLP policy SP8 and any requirements of a future West Suffolk Recreational Avoidance and Mitigation Study.

6.1.6 It is concluded that **subject to recommendations made in this assessment, the Barrow-cum-Denham Neighbourhood Plan will contain sufficient policy framework to ensure no adverse effects on the integrity of Habitats sites will occur in isolation or in combination with other projects and plans**.

Appendix A – Site Location

Figure 3 – Site allocations in relation to Habitats Sites

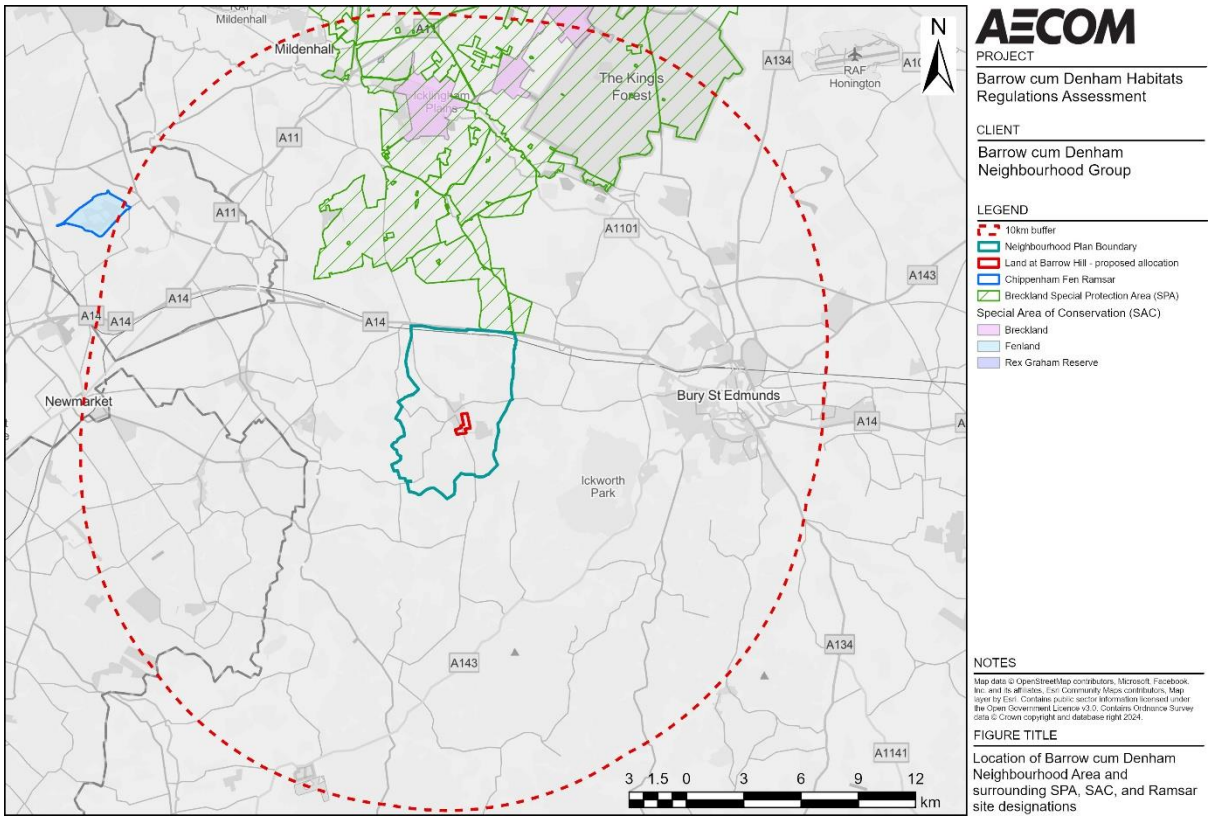

Figure 4 – Site allocations within Parish