# Habitats Regulations Assessment of the Dickleburgh and Rushall Neighbourhood Plan 2021

Dickleburgh and Rushall Neighbourhood Plan Group

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## Quality information

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## Revision History

| Revision | Revision date | Details | Authorized | Name | Position |
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# Table of Contents



# Figures

## Tables

# 1. Introduction

1.1 AECOM has been commissioned by Dickleburgh and Rushall Parish Council to undertake a Habitats Regulations Assessment of the emerging Dickleburgh and Rushall Neighbourhood Plan (DRNP), which outlines the vision for the parish to 2042, aligning it with the overarching Local Plan. Neighbourhood planning was introduced through the Localism Act 2011, giving local communities the opportunity to help shape local development. The DRNP sets out the policy framework that will be used to review planning applications, alongside the adopted policies in the overarching Local Plan. Neighbourhood Plans are obligated to support the delivery of strategic policies set out in Local Plans and need to be in conformity with overarching planning requirements.

1.2 An HRA is required under the terms of the Conservation of Habitats & Species Regulations 2017 (as amended) to assess whether any policies of development plans may have Likely Significant Effects (LSEs) and, ultimately, the potential to cause adverse effects on the integrity of Natura 2000 or European Designated Sites (Special Areas of Conservation, SACs, Special Protection Areas, SPAs, and Ramsar sites designated under the Ramsar convention), either in isolation or in combination with other plans and projects. If this is the case, this HRA will evaluate whether site-specific or policy mitigation measures are required.

1.3 Dickleburgh and Rushall Parish is characterised by the two villages of Dickleburgh and Rushall, large open fields, scattered linear housing, wooded areas and occasional light industrial employment, concentrated in the east of the parish. Dickleburgh village likely came into existence due to the Moor, which defined the history, industry and commerce of the village. While much of the Moor has been drained in recent times, diminishing its extent, it continues to hold an important value for local biodiversity (although it is to be noted that the Moor is not designated as a European site). The public consultation process has shown that it is of utmost importance to local residents to retain the rural character, heritage and biodiversity of the parish. An assessment of the policies contained in the DRNP indicates that none of the policies include proposals for new residential and / or employment development, the main pathway through which European sites are likely to be impacted.

1.4 There are no European sites within the parish. However, two such sites have been identified within the wider Zone of Influence (ZoI) of the NP area, including the Waveney and Little Ouse Valley Fens SAC and the Redgrave and South Lopham Fens Ramsar (both at a distance of approx. 9.9km from the parish boundary). Both sites are designated for habitats and species that depend on hydrology, such as fen, wet meadows and invertebrate species. Therefore, it is considered that potential effects on water quality and level are the most likely impact pathways relevant to the DRNP. Furthermore, the characteristic flora and fauna in these sites is also sensitive to atmospheric pollution, another impact linked to development plans.

1.5 In addition to sites lying within 10km of Dickleburgh and Rushall, the Norfolk local authorities have also undertaken strategic recreational pressure investigations and devised a Green Infrastructure Recreation Avoidance Mitigation Strategy (GIRAMS) which effectively covers the whole of Norfolk and applies to all net

new residential development. Contributions by developers to delivery of the GIRAMS will be used to sufficiently mitigation recreational pressure effects on European sites in the country from residential development and population growth[1]. Since this applies to all European sites in Norfolk it will also apply to growth in Dickleburgh and Rushall.

# Legislation

1.6 The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). This established a transition period, which ended on 31 December 2020. The Withdrawal Act retains the body of existing EU-derived law within our domestic law, meaning that the requirement for HRA continues post-Brexit.

1.7 The need for HRA is set out within the Conservation of Habitats & Species Regulations 2017 (as amended) and concerns the protection of European sites (Figure 1). European sites can be defined as actual or proposed/candidate Special Areas of Conservation (SAC) or Special Protection Areas (SPA). It is also Government policy for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to European sites.

1.8 The HRA process applies the precautionary principle to protected areas. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

**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']*."*

**Figure 1: The legislative basis for HRA.**

1.9 It is therefore important to note that this report has two purposes:

- To assist the Qualifying Body (Dickleburgh and Rushall Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect European sites, thus making it more likely their plan will be deemed compliant with the Conservation of Habitats and Species Regulations 2017 (as amended); and
- On behalf of the Qualifying Body, to assist the Local Planning Authority (South Norfolk District Council) to discharge their duty under Regulation 105 (in their role as 'plan-making authority' within the meaning of that regulation) and Regulation 106 (in their role as 'competent authority').

[1] https://www.southnorfolkandbroadland.gov.uk/downloads/download/807/green-infrastructure-recreation-avoidance-mitigation-strategy

1.10 As ‘competent authority’, the legal responsibility for ensuring that a decision of ‘Likely Significant Effects’ is made, for ensuring an ‘Appropriate Assessment’ (where required) is undertaken, and for ensuring Natural England are consulted, falls on the local planning authority. However, they are entitled to request from the Qualifying Body the necessary information on which to base their judgment and that is a key purpose of this report.

1.11 Over the years, ‘Habitats Regulations Assessment’ (HRA) has come into wide currency to describe the overall process set out in the Habitats Regulations, from LSEs screening through to identification of IROPI. This has arisen in order to distinguish the overall process from the individual stage of "Appropriate Assessment". Throughout this report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name.

## Scope of the Project

1.12 There is no pre-defined guidance that dictates the physical scope of an HRA of a plan document. Current guidance suggests that the following European sites should be included in the scope of an HRA assessment:

- All European sites within the boundary of Dickleburgh and Rushall Parish; and,
- Other European sites within 10km shown to be linked to development in the Parish through a known ‘pathway’ (discussed below).

1.13 Generally, it is uncommon for development plans to be deemed to have a significant effect on European sites situated more than 10km from areas of growth. For example, most core recreational catchments (except for some coastal sites) are under 10km in size, there are few wintering waterfowl and waders that make extensive use of functionally linked habitats located more than 10km from their core areas, and the average vehicle commuting distance of a UK resident is approx. 10km. It should be noted that the presence of a conceivable impact pathway linking a plan to a European site does not mean that Likely Significant Effects (LSEs) will occur.

1.14 In some cases, development impacts can extend beyond 10km, particularly where hydrological pathways are involved, which is why the source-pathway-receptor concept is also used to help determine whether there are potential pathways connecting development to European sites. This takes site-specific sensitivities into account, including issues such as nutrient neutrality or water level, quantity and flow.

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

1.16 This basic principle has also been reflected in court rulings. The Court of Appeal[2] has ruled that provided the competent authority was duly satisfied that proposed mitigation could be 'achieved in practice' to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a Core Strategy document)[3]. 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'*.

1.17 Given an initial assessment of European sites and the likely impact pathways present, this HRA will discuss (at least as far as the LSEs screening stage) the following European sites:

- Waveney and Little Ouse Valley Fens SAC (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk); and
- Redgrave & South Lopham Fens Ramsar (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk).

1.18 In addition, the strategic mitigation strategy for recreational pressure adopted by all Norfolk local authorities will be discussed. The distribution of the above European sites in relation to Dickleburgh and Rushall Parish is shown in Appendix A. An introduction to, the qualifying features (species and habitats), Conservation Objectives, and threats and pressures to the integrity of these European sites is set out in Chapter 3 of this HRA.

1.19 In March 2022, Natural England flagged concerns over nitrogen and/or phosphorus inputs to the River Wensum SAC and The Broads SAC/SPA in Norfolk. However, the catchment mapping provided with Natural England's advice[4] clearly shows that Dickleburgh and Rushall parish lies well outside the nutrient neutrality catchment for both European sites. Therefore, nutrient neutrality is not discussed any further in this HRA report.

1.20 In order to fully inform the LSEs screening, the following online sources have been consulted:

- Site Improvement Plans and Supplementary Conservation Advice Notes for relevant European sites;
- The UK Air Pollution Information System (www.apis.ac.uk); and
- Multi Agency Geographic Information for the Countryside (MAGIC) and its links to SSSI citations and the JNCC website (www.magic.gov.uk).

[2]No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015
[3]High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015
[4] Available at https://www.southnorfolkandbroadland.gov.uk/downloads/download/816/nutrient-neutrality

# Quality Assurance

1.21 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.

1.22 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, 2019)

# 2. Methodology

## Introduction

2.1 The HRA has been carried out with reference to the general EC guidance on HRA[5] and guidance on HRA published by the UK government in July 2019[6]: AECOM has also been mindful of the implications of European case law in 2018, notably the Holohan ruling and the People over Wind ruling.

2.2 Figure 2 below outlines the stages of HRA according to prevailing UK government guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to a plan document until no significant adverse effects remain. Note that only HRA Task 1 is discussed below, since LSEs of the DRNP are excluded and HRA Task 2 / Task 3 are therefore not required.

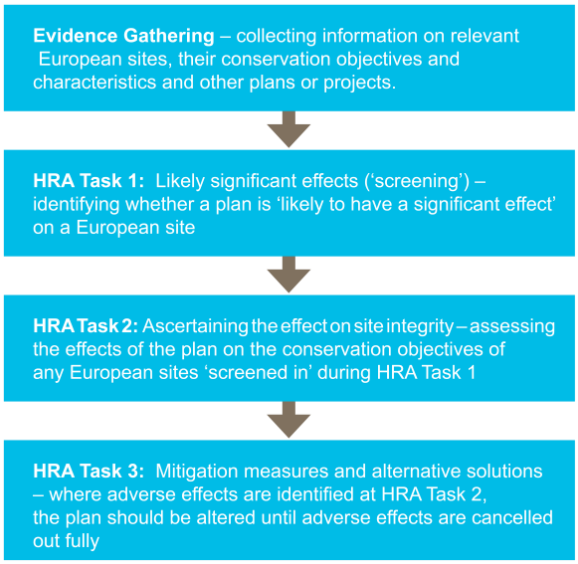


**Figure 2: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2001[1].**

## Description of HRA Tasks

### HRA Task 1 – Test of Likely Significant Effects (LSEs)

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

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

2.4 The objective is to filter out those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in LSEs upon European

[5] 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.
[6] https://www.gov.uk/guidance/appropriate-assessment

sites, usually because there is no mechanism for an adverse interaction. This stage is undertaken in Chapter 5 and Appendix B of this report.

# In-Combination Assessment

2.5 It is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended), that the impacts of any development plans are not only considered in isolation but in-combination with other plans and projects that may also be affecting the European site(s) in question.

2.6 For example, when considering the potential for combined regional housing development across multiple parishes or local authorities to impact European sites, a key emphasis must be on the cumulative impact of visitor numbers (i.e. recreational pressure). While one parish might only contribute a minor portion of recreational pressure (with no negative impact on a European site in isolation), other adjacent parishes may also each contribute minor ‘amounts’ of such pressure. Cumulatively, this may result in detectable increases in recreational pressure and impacts on designated species.

2.7 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. Therefore, in practice, in-combination assessment is of greatest relevance when a plan or policy would otherwise be screened out because its individual contribution is negligible.

# 3. European Sites

## Waveney and Little Ouse Valley Fens SAC

### Introduction

3.1 The Waveney and Little Ouse Valley Fens SAC is a 192.37ha large site comprising bogs / marshes (48.7%), broad-leaved deciduous woodland (15.4%), humid / mesophile grassland (14.8%), heath / scrub (10.9%), inland water bodies (10%), dry grassland / steppes (0.1%) and improved grassland (0.1%). Generally, the SAC lies within the East Anglian centre of distribution of calcareous fens. It harbours extensive tracts of great fen-sedge *Cladium mariscus* beds as well as transition zones between small sedge mire and species-poor *Cladium* beds. These habitats occur in spring-fed valleys comprising the Little Ouse and Waveney rivers.

3.2 The site also supports purple moor-grass and meadow thistle fen meadows (*Molinia caerulea – Cirsium dissectum*), which are associated with spring-fed valley fen systems. Within this SAC *Molinia* meadows occur with black bog-rush and blunt-flowered rush mire (*Schoenus nigricans – Juncus subnodulosus*) and calcareous fens with great fen-sedge. Grazed sections of the site harbour higher species diversity, including the southern marsh-orchid *Dactylorhiza praetermissa*. The Lopham and Redgrave Fen SSSI, component part of the SAC, is one of three locations in the UK for the fen raft spider *Dolomedes plantarius*.

### Qualifying Features[7]

3.3 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*)
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

3.4 Annex II species that are a primary reason for selection of this site:

- Desmoulin's whorl snail *Vertigo moulinsiana*

### Conservation Objectives[8]

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

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

[7] Available at: https://sac.jncc.gov.uk/site/UK0012882 [Accessed on the 03/05/2022]
[8] Available at: http://publications.naturalengland.org.uk/publication/4749900759695360 [Accessed on the 03/05/2022]

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

## Threats / Pressures to Site Integrity[9]

3.7 Natural England's Site Improvement Plan identifies the following threats / pressures to the integrity of the Waveney and Little Ouse Valley Fens SAC:

- Inappropriate scrub control
- Inappropriate water levels
- Air pollution: Impact of atmospheric nitrogen deposition
- Water pollution

3.8 Natural England's Supplementary Advice on Conservation Objectives[10] (SACO) provides further guidance on achieving the Conservation Objectives and protecting the integrity of the SAC. The SACO highlights that all three qualifying features are sensitive to changes in water quality and hydrology (such as water supply). For example, the *Molinia* meadows require a water table of between 2cm and 48cm below ground level in summer and a water table at ground level in winter.

# Redgrave & South Lopham Fens Ramsar

## Introduction

3.9 The Redgrave & South Lopham Fens Ramsar forms a component part of the Waveney and Little Ouse Valley Fens SAC. This SSSI is a 127ha large site, comprising the largest remaining area of river valley fen in England, including saw-sedge beds, areas of open water, heathland, scrub and woodland. It is one of only three sites in the UK where the fen raft spider *Dolomedes plantarius* is found.

3.10 The habitats present in the SSSI are characteristic of valley mire, representing a zonation of vegetation types. Dry marginal woodland becomes fen grassland (dominated by purple moor-grass and saw sedge), which grades into mixed fenland and sedge beds. Heath vegetation protrudes into the fen communities in sandy ridges. Without management these communities become invaded by sallow, over time developing into scrubland. The Ramsar is particularly important

[9] Available at: http://publications.naturalengland.org.uk/publication/5465193064693760 [Accessed on the 03/05/2022]
[10] Available at: http://publications.naturalengland.org.uk/publication/4749900759695360 [Accessed on the 03/05/2022]

for its diverse invertebrate assemblage, which includes 19 species of dragonfly and 27 species of butterfly.

## Qualifying Features[11]

3.11 The site is designated as a Ramsar under the following Ramsar criteria:

**Criterion 1**

The site is an extensive example of spring-fed lowland base-rich valley, remarkable for its lack of fragmentation.

**Criterion 2**

The site supports many rare and scarce invertebrates, including a population of the fen raft spider *Dolomedes plantarius*. The spider is also considered vulnerable by the IUCN Red List.

**Criterion 3**

The site supports many rare and scarce invertebrates, including a population of the fen raft spider *Dolomedes plantarius*. The diversity of the site is due to the lateral and longitudinal zonation of the vegetation types characteristic of valley mires.

## Threats / Pressures to Site Integrity[12]

3.12 Given that the Redgrave & South Lopham Fens Ramsar is a component part of the Waveney & Little Ouse Valley Fens SAC, similar threats / pressures to site integrity will apply (see previous section on the SAC). Additionally, the Information Sheet on Ramsar Wetlands (RIS) highlights that several factors adversely affect the site's ecological character, including dredging, eutrophication, pollution (fertilisers, pesticides and general agricultural runoff). The RIS also states that overall recreational use is low, mostly restricted to the summer months.

[11] Available at: https://rsis.ramsar.org/RISapp/files/RISrep/GB513RIS.pdf [Accessed on the 03/05/2022]
[12] Available at: https://rsis.ramsar.org/RISapp/files/RISrep/GB513RIS.pdf [Accessed on the 03/05/2022]

# 4. Background to Impact Pathways

## Recreational pressure

4.1 Consultants 'Footprint Ecology' undertook surveys in 2015-16, the results of which provided local authorities in Norfolk with information to underpin reviews of their Local Plans, Habitats Regulations Assessments and this Strategic solution for avoidance and mitigation. The results highlight how an increase in recreational pressure (particularly at the North Coast, the Broads and the Valley Fens) is predicted to be linked with residential development across multiple local authorities and that solutions are likely to be most effective if delivered and funded in partnership.

4.2 In other parts of the country, strategic mitigation schemes have been established involving partnerships of local authorities delivering mitigation funded through developer contribution schemes. Such approaches would provide Norfolk authorities with an effective way of delivering mitigation and some recommendations for mitigation approaches are given.

4.3 The HRA work undertaken for the individual Local Plans in Norfolk has identified a common theme regarding the potential for recreational activities to disrupt the protection objectives of Habitats Sites in and around Norfolk. This is related to the level of growth in each Local Plan, specifically an increase in population resulting from identified new housing requirements that are within the 'Zone of Influence' (ZOI) for likely significant effects regarding recreational disturbance at Habitats Sites.

4.4 ZOIs represent the extent of land around Habitats Sites within which residents travel to them for recreational activities, as evidenced by extensive survey work. Local Plan allocated growth will result in more people visiting and possibly harming Habitats Sites. Effects can occur from activities as varied as dog walking to water sports.

4.5 Dickleburgh and Rushall parish lies within the Zone of Influence set by the investigations undertaken by Footprint Ecology, as this covers the whole of Norfolk. **Therefore recreational pressure on European sites in Norfolk is covered in the HRA.**

## Water Quantity, Level and Flow

4.6 The water level, its flow rates and the mixing conditions are important determinants of the condition of European sites with hydrological dependencies. Hydrological processes are critical in influencing habitat characteristics in wetlands, including water depth, dissolved oxygen levels and water temperature. In turn these parameters determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition.

4.7 A highly cited review paper summarised the ecological effects of reduced flow in rivers. Droughts (ranging in their magnitude from flow reduction to a complete loss of surface water) have both direct and indirect effects on stream communities. For example, a marked direct effect is the loss of water and habitat for aquatic organisms. Indirect effects include a deterioration in water quality,

changes to the food resources and alterations in interspecific interactions. An increased stability of baseflow and a reduction in the natural flow variability of rivers has been linked to the excessive growth of macrophytes and a reduction in fish populations in rivers and recipient waterbodies.

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

- The supply of new housing with potable water may require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in the geographic region, this may reduce the water levels in European sites sharing their catchment with abstraction sources.

- The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface water runoff. As traditional drainage systems often cannot cope with the volume of stormwater, sewer overflows are designed to discharge excess water directly into watercourses. Often this pluvial localised flooding results in downstream inundation of watercourses and the potential flooding of wetland habitats.

4.9 Dickleburgh and Rushall Parish lies within 10km of two European sites that rely on hydrological input. The Waveney and Little Ouse Valley Fens SAC is designated for calcareous fens, *Molinia* meadows and the Desmoulin's whorl snail, all of which are water-dependent features. Natural England's Site Improvement Plan[13] refers to inappropriate water levels as one of the main pressures on the SAC. Historical evidence suggests that water levels within the site have dropped significantly, resulting in damage to qualifying features. Therefore, a Water Level Management Plan is being developed, which is to identify the main issues with regard to changing water levels and suggest suitable mechanisms to address these. The Desmoulin's whorl snail depends on habitats and plants that require wet or moist conditions, including blunt-flowered rush, common reed and saw sedge. The Supplementary Advice on Conservation Objectives (SACO) for the SAC[14] specifies that high groundwater tables and ground moisture levels are one of the most important distribution determinants of the snail.

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

- **Waveney and Little Ouse Valley Fens SAC (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk)**

[13] Available at: http://publications.naturalengland.org.uk/publication/5465193064693760 [Accessed on the 06/05/2022]
[14] Available at: http://publications.naturalengland.org.uk/publication/4749900759695360 [Accessed on the 06/05/2022]

- **Redgrave and South Lopham Fens Ramsar (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk)**

# Water Quality

**4.11** The quality of the water that feeds European sites is an important determinant of the condition of habitats and the species these support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of water with nutrients, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In freshwater ecosystems, plant growth is primarily determined by bioavailable phosphorus, which is determined by a wide range of sources, including treated sewage effluent from Wastewater Treatment Works (WwTWs) and urban surfaces such as roads.
- 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.
- Release of dust from development sites, both during the construction and operational periods, can increase the sediment load in nearby watercourses, including through direct deposition and mobilisation of sediments in suspension in surface run-off. The resulting sediment load and associated turbidity can smother aquatic plants and invertebrates, as well as impacting predators that hunt visually (e.g. fish).

4.12 The greatest threat arising from the Dickleburgh and Rushall NP would be the discharge of treated sewage effluent, which may increase the concentration of nutrients in European sites with hydrological linkages to the discharge points of relevant WwTWs. The main pollutant of concern in freshwater ecosystems is phosphorus, which is the growth-limiting nutrient for most freshwater plants, including algal species. Natural England's SIP[15] indicates that water pollution in the form of nutrient enrichment is a main pressure in the SAC, although this mainly originates from '*agricultural runoff…from nearby outdoor poultry and pig units.*'

4.13 The NP assessed in this HRA covers a geographic area that is served by Anglian Water, responsible for the public water supply and wastewater treatment within Dickleburgh and Rushall Parish (as well as other parts of east Norfolk). The potential ecological implications of DRNP development are outlined in Table 1.

[15] Available at: http://publications.naturalengland.org.uk/publication/5465193064693760 [Accessed on the 06/05/2022]

**Table 1: Wastewater Treatment Works (WwTWs) serving development in Dickleburgh and Rushall Parish that are in potential hydrological continuity with European sites relevant to the NP.**

| WwTW Catchment | Potential HRA Implications |
|---|---|
| Dickleburgh Rectory Road and Rushall WwTWs (operated by Anglian Water) | Potential discharge of treated sewage effluent into local rivers, streams and dykes that feed into waterbodies in hydrological continuity with the Waveney and Little Ouse Valley Fens SAC (e.g. the Rivers Waveney and Ouse) |

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

- **Waveney and Little Ouse Valley Fens SAC (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk)**
- **Redgrave and South Lopham Fens Ramsar (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk)**

# Atmospheric Pollution

4.15 The main pollutants of concern for European sites are oxides of nitrogen (NOx), ammonia ($NH_3$) and sulphur dioxide ($SO_2$) and are summarised in Table 2. Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[16]. NOx can also be toxic at very high concentrations (far above the annual average Critical Level). However, in particular, high levels of NOx and $NH_3$ are likely to increase the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere is widely known to enhance soil fertility and to lead to eutrophication. This often has adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats[17] [18].

**Table 2: Main sources and effects of air pollutants on habitats and species[19].**

| Pollutant | Source | Effects on habitats and species |
|---|---|---|
| Sulphur Dioxide ($SO_2$) | The main sources of $SO_2$ are electricity generation, and industrial and domestic fuel combustion. However, | Wet and dry deposition of $SO_2$ acidifies soils and freshwater and may alter |

[16] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[17] Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. **2006.** Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. Lichenologist 38: 161-176
[18] Dijk, N. **2011.** Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation Global Change Biology 17: 3589-3607
[19] Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/)

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| | total $SO_2$ emissions in the UK have decreased substantially since the 1980's.<br><br>Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of $SO_2$ have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to $SO_2$ emissions in the UK. | the composition of plant and animal communities.<br><br>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.<br><br>However, $SO_2$ background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London. |
| Acid deposition | Leads to acidification of soils and freshwater via atmospheric deposition of $SO_2$, NOx, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.<br><br>Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels. | Gaseous precursors (e.g. $SO_2$) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.<br><br>Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants.<br><br>Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible. |

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| Ammonia ($NH_3$) | Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.<br><br>Ammonia reacts with acid pollutants such as the products of $SO_2$ and $NO_X$ emissions to produce fine ammonium ($NH_4+$) - containing aerosol. Due to its significantly longer lifetime, $NH_4+$ may be transferred much longer distances (and can therefore be a significant trans-boundary issue).<br><br>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type. | The negative effect of $NH_4+$ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation.<br><br>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen.<br><br>As emissions mostly occur at ground level in the rural environment and $NH_3$ is rapidly deposited, some of the most acute problems of $NH_3$ deposition are for small relict nature reserves located in intensive agricultural landscapes. |
| Nitrogen oxides ($NO_x$) | Nitrogen oxides are mostly produced in combustion processes. Half of $NO_X$ emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.<br><br>Nitrogen oxides have been consistently falling for decades due to a combination of coal fired power station closures, abatement of other combustion point sources and improved vehicle emissions technology. They are expected to | Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NOx for all vegetation types has been set to 30 ug/m3.<br><br>Deposition of nitrogen compounds (nitrates ($NO_3$), nitrogen dioxide ($NO_2$) and nitric acid ($HNO_3$)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.<br><br>In addition, $NO_x$ contributes to the eutrophication of soils and water, altering the |

| | | |
|---|---|---|
| | continue to fall over the plan period. | species composition of plant communities at the expense of sensitive species. |
| Nitrogen deposition | The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. $NO_X$) or reduced (e.g. $NH_3$) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.<br><br>The N pollutants together are a large contributor to acidification (see above). | All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.<br><br>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.<br><br>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost. |
| Ozone ($O_3$) | A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).<br><br>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone. | Concentrations of $O_3$ above 40 ppb can be toxic to both humans and wildlife, and can affect buildings.<br><br>High $O_3$ concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities. |

4.16 Sulphur dioxide emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as (particularly on a local scale) shipping[20]. Ammonia emissions originate from agricultural practices[21], with some chemical processes also making notable contributions. As such, material increases in $SO_2$ or $NH_3$ emissions will not be associated with the emerging DRNP.

4.17 In contrast, NOx emissions are dominated by the output of vehicle exhausts (more than half of all emissions). A 'typical' housing development will contribute by far the largest portion to its overall NOx footprint (92%) through its associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[22]. The emerging DRNP, specifically if it increases the local population or employment opportunities within the parish, may increase emissions of NOx through an increase in vehicular traffic.

4.18 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 $\mu gm^{-3}$; the threshold for sulphur dioxide is 20 $\mu gm^{-3}$. In addition, ecological studies have determined 'Critical Loads'[23] of atmospheric nitrogen deposition (effectively NOx combined with ammonia $NH_3$).

4.19 According to the Department of Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is insignificant (**Error! Reference source not found.** and see reference [24]). Therefore, this distance has been used in this HRA to identify potential major commuter routes of concern along European sites, particularly where they lie within 200m of sensitive qualifying habitat parcels.

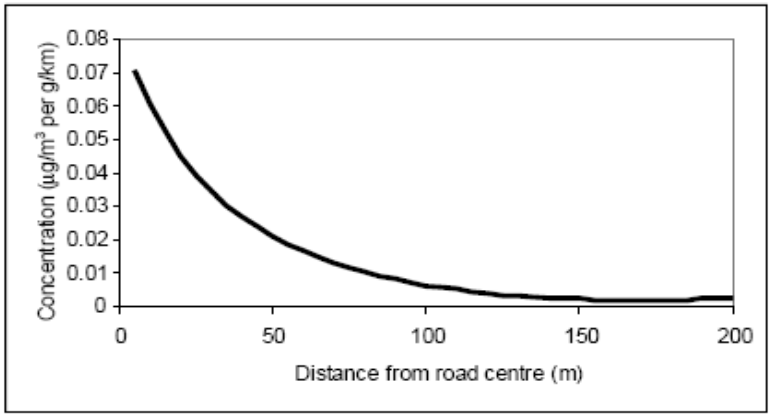


**Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT[25]).**

4.20 The following European sites within 10km of Dickleburgh and Rushall Parish are sensitive to atmospheric pollution arising from the DRNP, such as through

[20] http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.
[21] Pain, B.F.; Weerden, T.J.; Chambers, B.J.; Phillips, V.R.; Jarvis, S.C. 1998. A new inventory for ammonia emissions from U.K. agriculture. Atmospheric Environment 32: 309-313
[22] 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
[23] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[24] http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013; accessed 12/05/2016
[25] http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf; accessed 13/07/2018

increasing the number of two-way vehicle trips through or within 200m of these sites (the sites in bold are taken forward into the following chapter):

- **Waveney and Little Ouse Valley Fens SAC (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk)**
- **Redgrave and South Lopham Fens Ramsar (approx. 9.9km to the west of the Parish and distributed across the authorities of Breckland and Mid Suffolk)**

# 5. Screening for Likely Significant Effects (LSEs)

## Recreational pressure

5.1 the Norfolk local authorities have also undertaken strategic recreational pressure investigations and devised a Green Infrastructure Recreation Avoidance Mitigation Strategy (GIRAMS) which effectively covers the whole of Norfolk and applies to all net new residential development. Contributions by developers to delivery of the GIRAMS will be used to sufficiently mitigation recreational pressure effects on European sites in the country from residential development and population growth[26]. Since this applies to all European sites in Norfolk it will also apply to growth in Dickleburgh and Rushall.

## Water Quantity, Level and Flow

### Waveney and Little Ouse Valley Fens SAC & Redgrave and South Lopham Fens Ramsar

5.2 For calcareous fens with great fen sedge, Natural England's SACO specifies that '*Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for this site… Changes in source, depth, duration, frequency, magnitude and timing of water supply can have significant implications for the assemblage of characteristic plants and animal present.*' Clearly, therefore, the condition and distribution of these fens would be greatly impacted by water levels that fall outside the required range. allocating residential and / or employment development would increase potable water demand in the parish.

5.3 However, Anglian Water has produced a Water Resource Management Plan, which sets out the water supply strategy for their supply area based upon robust population projections to 2045 years (i.e. beyond the end of the Neighbourhood Plan period). The WRMP has had its own HRA which considered whether their future supply strategy to meet water needs would affect European sites. It was concluded that the supply needs of their areas could be met without an adverse effect on the integrity of European sites, primarily through a combination of improved water efficiency measures and bringing new water supply areas into consideration that do not result in increased abstraction from European sites. As such, delivering new housing in Dickleburgh and Rushall would not require an increase in water abstraction from surface or groundwater sources in hydrological continuity with the Waveney and Little Ouse Valley Fens SAC and Redgrave and South Lopham Fens Ramsar. As such likely significant effects can be screened out.

[26] https://www.southnorfolkandbroadland.gov.uk/downloads/download/807/green-infrastructure-recreation-avoidance-mitigation-strategy

# Water Quality

## Waveney and Little Ouse Valley Fens SAC & Redgrave and South Lopham Fens Ramsar

5.4 The habitats for which the Waveney and Little Ouse Valley Fens SAC and Redgrave and South Lopham Fens Ramsar are designated are classified as Groundwater Dependent Terrestrial Ecosystems (GWDTEs). Such sites encompass wetlands that critically depend on groundwater flows and chemistries. The water quality in European sites that are also GWDTEs is safeguarded by the Water Framework Directive (WFD), which sets water chemistry requirements to protect the ecological integrity in these sites. As highlighted in the SACO, maintaining adequate water quality is also important regarding the Desmoulin's whorl snail, particularly during key stages of its life cycle. For example, a decline in water quality can adversely affect the availability of suitable foraging habitats for the snails, including the distribution of reed sweet-grass, greater pond-sedge and lesser pond-sedge (where it feeds on associated microflora).

5.5 However, it is noted that the WwTWs serving the parish discharge into the Waveney Operational Catchment downstream from these sites, such that there would be no hydrological connection between the discharge points and the SAC / Ramsar.

5.6 Overall, there is no linking impact pathway between the DRNP and the Waveney and Little Ouse Valley Fens SAC and Redgrave and South Lopham Fens Ramsar regarding water quality. Therefore, LSEs on these sites can be excluded and this impact pathway is screened out from Appropriate Assessment.

# Atmospheric Pollution

## Waveney and Little Ouse Valley Fens SAC & Redgrave and South Lopham Fens Ramsar

5.7 The Air Pollution Information System highlights that the Waveney and Little Ouse Valley Fens SAC is sensitive to atmospheric pollution, specifically from NOx and total mean annual nitrogen deposition. *Molinia* meadows have been assigned a nitrogen Critical Load of 15-25 kg N/ha/yr and exceedance impacts include an increase in tall graminoids, decreased overall biodiversity and reduced occurrence of bryophytes. At a nitrogen Critical Load of 15-30 kg N/ha/yr, calcareous fens are also at risk of biodiversity loss under increased nitrogen deposition regimes.

5.8 However, as discussed in the previous sections, the DRNP proposes no development with the potential to increase the volume of two-way commuter traffic within the parish itself or into adjoining parishes. Furthermore, a review of the road infrastructure in proximity to the SAC indicates that there are no major commuter routes within 200m of the SAC boundary. The nearest major A road, the A1066, runs approx. 740m north of the SAC, which is far beyond the screening distance used for potential atmospheric pollution impacts. Overall, there is no linking impact pathway between the DRNP and the Waveney and Little Ouse Valley Fens SAC and Redgrave and South Lopham Fens Ramsar

regarding atmospheric pollution. Therefore, LSEs on these sites can be excluded and this impact pathway is screened out from Appropriate Assessment.

# 6. Appropriate Assessment

## Recreational pressure

6.1 The Parish of Dickleburgh and Rushall contains a primary school. As a consequence, the parish is required to deliver 25 homes over the life of the Neighbourhood Plan, as part of the Greater Norwich Local Plan (Village cluster allocation). These homes, provided all challenges can be met, will be delivered on the site SN0516.

6.2 In response to the potential of an increased population to cause harm to Habitats Sites across all of Norfolk, from individual developments alone and also when considered with effects from other plans and projects (known as 'in-combination effects'), there is an opportunity to address mitigation strategically, in this instance at the County level. The role of Green Infrastructure at both development site and Local Plan levels is key to diverting and deflecting new residents from visiting Habitats Sites for their daily recreational needs; however as residual effects cannot be ruled out, strategic mitigation is also proposed within this document for mitigation measures to be delivered at the Habitats Sites to deal with residual effects following avoidance measures on development sites.

6.3 Within this Strategy, strategic GI opportunity areas are explored to complement diversionary GI provision that is already established, based on supporting information and evidence that has been provided by the LPAs. Residual effects are proposed to be mitigated through a Recreational impact Avoidance Mitigation Strategy (RAMS) in order to ensure that Local Plans can be adopted and to enable planned growth through the implementation of measures to avoid likely adverse effects on the integrity of the Habitats Sites.

6.4 The RAMS package of mitigation measures has been identified to cost in the region of £7.9 million. This tariff is payable on each net new dwelling that currently does not have full planning consent. There will therefore be a required cost to be paid by developers on each new dwelling that does not currently have planning permission. This approach seeks to mitigate the additional recreational pressure in a way that ensures that those responsible for it pay to mitigate it at a level consistent with the level of potential harm. Fairly, this represents a planning contribution that must be paid for each net new dwelling delivered in the County. This cost is identified as £185.93 per dwelling and per bedspace for tourist accommodation or student accommodation unit equivalents.

6.5 The Norfolk wide GI and RAMS Strategy aims to support Local Plan growth & meet the GI and Nature need for residents and visitors. It recommends each Authority:

- Commits to deliver enhanced GI with multiple benefits which is accessible locally to all Norfolk residents & tourists;
- Works flexibly and look beyond boundaries for strategic delivery of GI and RAMS measures at a range of levels;
- Commits to consulting conservation bodies regarding Rangers, seeking creative management options and acting on the results of monitoring;

- Delivers strategic and Local Plan policies in relation to new residential and tourist accommodation and work towards an aspirational target for enhanced GI within large scale developments;
- Secures developer contributions from all new residential development across Norfolk based on the evidenced tariff based approach, to make a substantial contribution to mitigating adverse impacts arising from planned housing growth at Habitats sites; and
- Implements the key projects and priorities to encourage appropriate recreational behaviour in line with the RAMS Action Plan.

**6.6 It is advised that, for clarity, this South Norfolk Local Plan requirement for financial contributions to delivery of the Norfolk Green Infrastructure and Recreation Avoidance Mitigation Strategy (GIRAMS) is referenced in the Neighbourhood Plan with regard to housing growth generally and site SN0516 in particular.**

# 7. In-Combination Assessment

It is a requirement to assess the potential impacts of a NP in-combination with growth in adjoining parishes. Regarding the DRPNP, the overarching Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk[27] would be the appropriate development for appraising in-combination effects. The JCS allocates at least 36,820 new dwellings in the plan area (which includes Dickleburgh and Rushall Parish), covering the years between 2008 and 2026. However, since the recreation mitigation strategy for Norfolk explicitly applies to all net new housing in the county specifically in order to address in combination effects, and the Anglian Water Water Resource Management Plan and its HRA cover the entire supply area, the assessment presented in this HRA is inherently in combination with other plans and projects.

[27] Available at: https://www.southnorfolkandbroadland.gov.uk/downloads/file/128/joint-core-strategy-adopted-document-2014 [Accessed on the 27/05/2022]

# 8. HRA Conclusions

8.1 This HRA assessed the potential for the DRPNP to result in LSEs and, potentially, adverse effects on the integrity of European sites. An initial scoping exercise highlighted that two European sites within 10km of the parish required further consideration, including the Waveney and Little Ouse Valley Fens SAC and Redgrave & South Lopham Fens Ramsar. The potential impact pathways associated with development in the parish are recreational pressure (applicable to all European sites Norfolk), water quantity, level and flow, water quality and atmospheric pollution.

8.2 It was concluded that LSEs regarding the above impact pathways could be screened out from Appropriate Assessment, with the exception of recreational pressure on European sites across Norfolk. However, since there is already a county-wide mitigation strategy to address recreational pressure to which all net new housing much contribute, it was possible in the appropriate assessment to conclude that Dickleburgh & Rushall Neighbourhood Plan would not have an adverse effect on European sites either alone or in combination with other plans and projects.

# Appendix A Maps

**Figure 4: Map of European sites within a 10km Zone of Influence (Zol) surrounding Dickleburgh and Rushall Parish.**

Revision: 0 Drawn: AG Checked: LC Approved: DW Date: 2022-05-27

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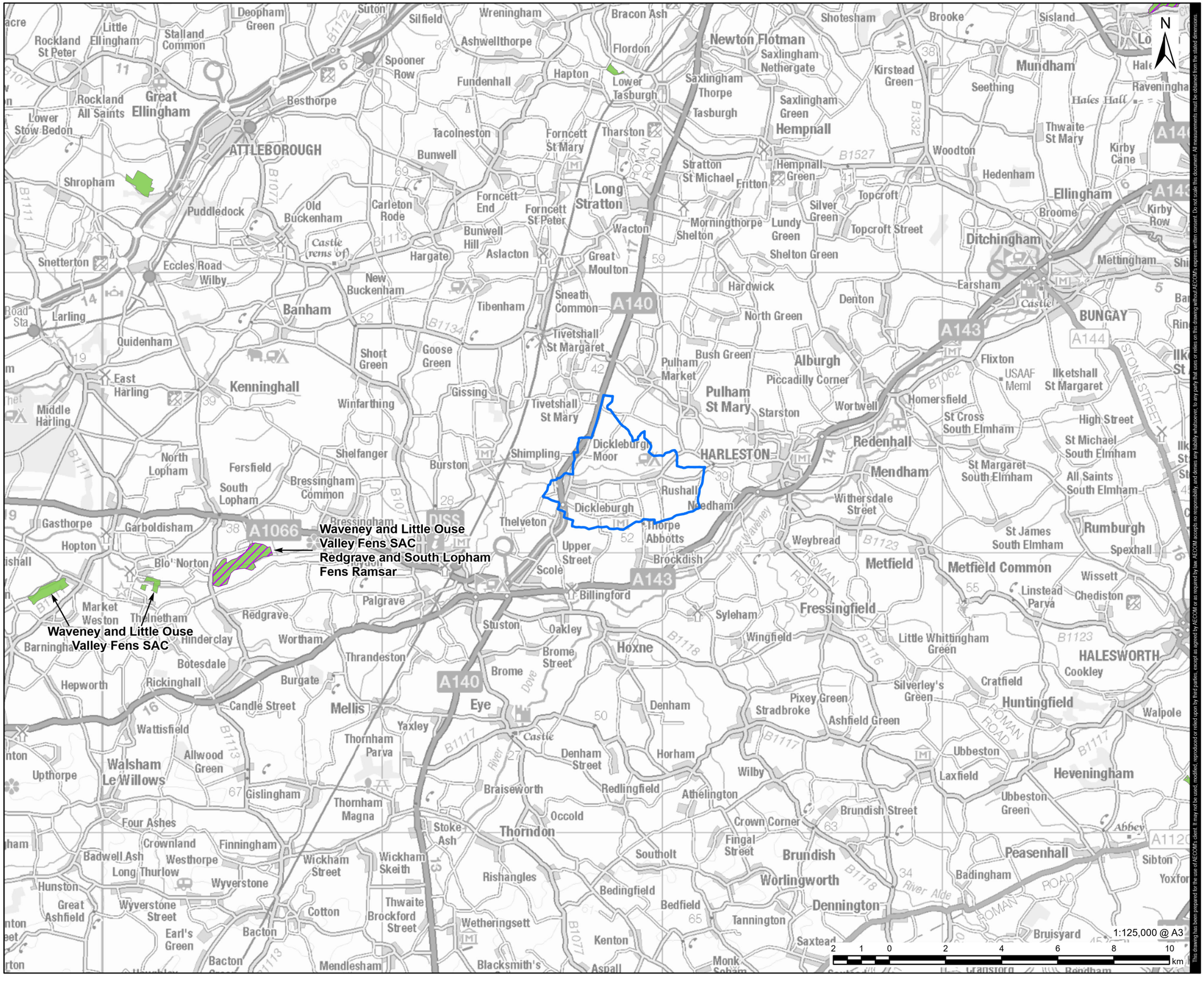




AECOM

**PROJECT**

Habitats Regulations Assessment of the Dickleburgh and Rushall Neighbourhood Plan

**CLIENT**

Dickleburgh and Rushall Parish Council

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**LEGEND**

- Dickleburgh and Rushall Parish Boundary
- Special Area of Conservation
- Ramsar

**NOTES**



**ISSUE PURPOSE**

FINAL

**PROJECT NUMBER**

60571087

**FIGURE TITLE**

European Sites Within 10km of Dickleburgh and Rushall Parish

**FIGURE NUMBER**

Figure 4

# Appendix B Screening for Likely Significant Effects (LSEs)

**Table 3: Screening of Dickleburgh and Rushall NP policies for potential Likely Significant Effects (LSEs). Where LSEs of a policy on these European sites can be excluded, the Screening Outcome column is shaded green. Where LSEs of a policy cannot be excluded, that same column is shaded orange.**

| Policy Number / Name | Policy Content | Likely Significant Effects (LSEs) Screening Outcome |
|---|---|---|
| Heritage Policies | | |
| Policy HP1: Heritage Buildings, Listed Buildings and Buildings Of Note | New buildings in the proximity of an identified heritage building should not impinge on its landscape setting. Building or landscaping works must be achieved through sensitive design that embraces heritage buildings. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP1 is a development management policy that protects the landscape setting of heritage buildings, listed buildings and buildings of note. However, the protection of heritage assets has no bearing on European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP1 is screened out from Appropriate Assessment. |
| Policy HP2: Archaeology | Archaeological features within the parish, particularly the settlements of Dickleburgh, Rushall and Langmere, must be unaffected and protected by development proposals. All archaeological findings must be registered with the appropriate authorities, including the Parish Council, South Norfolk Council and Norfolk County Council. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP2 is a policy that protects archaeological remains from destruction through new developments. However, the protection of archaeological interest features has no bearing on European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP2 is screened out from Appropriate Assessment. |

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| Policy HP3: Heritage Sites | This policy protects heritage sites from harm through erosion, such as through development abutting such a site. Heritage sites are important in creating a sense of place and for the wellbeing of the community. Development adjacent to heritage sites must represent a last resort. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP3 is a development management policy that protects heritage sites from erosion, such as through new development. However, the protection of heritage sites has no bearing on European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP3 is screened out from Appropriate Assessment. |
| Policy HP4: Views and Vistas | This policy protects views and vistas across the Parish that are important to local residents. These may include distant buildings, areas of landscape and open agricultural countryside. New developments that may affect views and vistas must demonstrate that they enhance the view and not distract from it. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP4 is a development management policy that protects views and vistas across the parish, including distant buildings and particular areas of landscape. However, the protection of views and vistas has no bearing on European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP4 is screened out from Appropriate Assessment. |
| Policy HP5: Settlement Gaps | This policy protects the nucleated nature of settlements within the parish, preventing distinct villages / hamlets from merging and coalescing. This includes keeping isolated buildings or clusters of buildings separate from existing conurbations. The two Settlement Gaps include the gap between Dickleburgh and Dickleburgh Moor (Gap A) and the gap between Rushall and Dickleburgh (Gap B). Specific conditions will need to be fulfilled to build within or on the margins of these gaps. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP5 is a development management policy that maintains two Settlement Gaps within the parish. However, the maintenance of gaps between settlement has no direct relevance for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP5 is screened out from Appropriate Assessment. |

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| Policy HP6: Local Gaps | Local gaps within the parish must be maintained and / or enhanced. This is to be achieved through sensitive planting, encouraging avian habitation and increasing biodiversity. Local gaps, smaller than Settlement Gaps, are considered to be important to the human population as well as the natural life. Overall, seven Local Gaps are identified in the parish. Specific conditions will need to be fulfilled to build within or on the margins of these gaps. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP6 is a development management policy that maintains seven Local Gaps within the parish. However, the maintenance of these Local Gaps has no direct relevance for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP6 is screened out from Appropriate Assessment. |
| Policy HP7: Heritage Ditches and Hedgerows | This policy protects all heritage ditches and hedgerows. Developments that compromise the integrity of these features must mitigate or compensate for any impacts. Compensation would entail the creation of a new ditch or hedgerow with the same opportunities for wildlife. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP7 is a development management policy that protects heritage ditches and hedgerows across the parish. Mitigation and compensation measures must be employed by development proposals with the potential for impacting these features. While positive for the environment and wildlife, the preservation of ditches and hedgerows has no bearing on the European sites relevant to the Dickleburgh and Rushall NP.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP7 is screened out from Appropriate Assessment. |
| Policy HP8: Heritage Verges | This policy protects all heritage verges across the parish. Where development proposals compromise the integrity of verges, mitigation and compensation measures must be put in place. Compensation will consist of the creation of a new verge with similar value to wildlife than the original verge to be impacted. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP8 is a development management policy that protects heritage verges across the parish. Mitigation and compensation measures must be employed by development proposals with the potential for impacting these features. While positive for the environment and wildlife, the preservation of verges has no direct bearing |

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| | | on the European sites relevant to the Dickleburgh and Rushall NP.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP8 is screened out from Appropriate Assessment. |
| Housing Policies | | |
| Policy HP1: Rurality and Beautification | This policy specifies that all new developments must fully reflect the principles of Rurality and Beautification. Failure to meet the standard outlined in the design guidelines will result in planning applications being denied. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP1 is a development management policy that requires new developments to meet the principles of Rurality and Beautification. However, meeting these principles has no direct bearing on European sites.<br><br>There are no impact pathways that link this policy to European Sites. Therefore, Policy HP1 is screened out from Appropriate Assessment. |
| Policy HP2: Local Housing Needs | This policy states that new housing developments of over 10 dwellings must meet the population needs of the parish, including housing for older people, people with disabilities and the delivery of smaller homes.<br><br>It also identifies the allocation of one site for 25 dwellings | Likely Significant Effects of this policy on European Sites.<br><br>Policy HP2 specifies the population needs that will need to be met by housing developments of over 10 dwellings (e.g. needs of older and disabled people). However, the policy does not set a quantum of residential dwellings to be developed in the NP period.<br><br>The policy also identifies the delivery of 25 net new dwellings within Norfolk which may be associated with a net increase in the local population. As such impact pathways link this policy to European Sites. Overall, Policy HP2 is screened in for Appropriate Assessment. |

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| Policy HP3: Valued Community Assets | This policy protects the community assets of All Saints Church, St Mary's Church, Dickleburgh Village Community Centre and Reading Room from impinging housing, industrial and commercial developments. Development proposals will need to meet all requirements of rurality, beautification and wellbeing. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP3 protects various community assets across the parish from impingement through housing, industrial and commercial developments. However, the protection of community assets has no direct bearing on European sites.<br><br>Therefore, there are no impact pathways that link this policy to European Sites. Overall, Policy HP3 is screened out from Appropriate Assessment. |
| Policy HP4: Rural and Village Scape, Image, Heights and Massing | This policy requires all developments to meet the requirement of rurality and achieve high quality / inclusive design. Proposals must indicate how they will enhance the quality of the environment and retain the prevailing character. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP4 is a development management policy that requires new developments to meet the requirement of rurality and high quality / inclusive design. However, preserving and enhancing the environment and prevailing character has no direct bearing on European sites.<br><br>Therefore, there are no impact pathways that link this policy to European Sites. Overall, Policy HP4 is screened out from Appropriate Assessment. |
| Policy HP5: Parking For the Building of New Houses or Conversions | This policy sets out the parking requirements for new dwellings based on standards in the Design Guide. Nose to tail parking will be rejected due to its implications for greenhouse gas emissions and the health / wellbeing of residents. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP5 is a development management policy that sets the parking requirements for new dwellings in the parish. However, parking standards have no direct relevance to European sites.<br><br>Therefore, there are no impact pathways that link this policy to European Sites. Overall, Policy HP5 is screened out from Appropriate Assessment. |

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| Policy HP6: New Homes and The Local Environment | This policy sets out that the building of all new homes must take environmental and biodiversity interests into account. Aspects of identified features (e.g. the environment) must be integrated into the planned development. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP6 is a development management policy that requires all residential developments to take environmental and biodiversity features into account. However, while positive for the general environment, has no direct benefits for the European sites relevant to the Dickleburgh and Rushall NP.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP6 is screened out from Appropriate Assessment. |
| Policy HP7: Water Management 1 – Water Harvesting | This policy requires all new housing to utilise underground grey water harvesting, installed at the time of construction. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP7 is a development management policy that requires all new housing to utilise underground harvesting. Reusing greywater (e.g. water from baths, showers, sinks and utilities) saves approx. 50-80% of a household's water supply. As such, it will reduce the volume of potable water demand from new housing and is positive for European sites that depend on sufficient water levels (e.g. the Waveney and Little Ouse Valley Fens SAC and Redgrave & South Lopham Fens Ramsar).<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP7 is screened out from Appropriate Assessment. |
| Policy HP7a: Water Management 2 | This policy specifies that all new housing developments must incorporate water harvesting for each property. This includes the use of permeable surfaces in built features to alleviate localised flooding. Development must not cause or contribute to flooding, drainage issues and pollution. Surface water drainage ponds | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP7a is a development management policy that requires all new residential properties to employ water harvesting as well as permeable surfaces on all aspects |

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| | should appear natural and be able to be colonised by local flora and fauna. Permeable materials are to be used on free-standing areas such as drives, parking bays, walkways, vehicle laybys and public open spaces. | of the built environment. Permeable surfaces (e.g. Sustainable Drainage Systems, SuDS) reduce the risk of flooding and aquatic pollution (e.g. through input of sediment and toxic pollutants in surface runoff). Overall, this policy is positive because it reduces the risk of inadequate changes in water levels and pollution in water-dependent European sites, such as the Waveney and Little Ouse Valley Fens SAC and Redgrave & South Lopham Fens Ramsar.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP7a is screened out from Appropriate Assessment. |
| Policy HP8: Building on Previously Open Land / Green Spaces | This policy requires development proposals on greenfield sites to instal sustainable drainage schemes (e.g. ponds, swales, trees and grasslands), maximising opportunities for wildlife. Where paving is required this should encompass permeable features. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP8 is a development management policy that requires development proposals on greenfield sites to deliver sustainable drainage schemes. Permeable drainage features (also referred to as Sustainable Drainage Systems, SuDS) reduce the risk of flooding and aquatic pollution (e.g. through input of sediment and toxic pollutants in surface runoff). Overall, this policy is positive because it reduces the risk of inadequate changes in water levels and pollution in water-dependent European sites, such as the Waveney and Little Ouse Valley Fens SAC and Redgrave & South Lopham Fens Ramsar.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP8 is screened out from Appropriate Assessment. |
| Policy HP9: Cordon Sanitaire | This policy stipulates that no new development is to be located in any cordon sanitaire, within 400m of a Sewage Works. | The are no Likely Significant Effects of this policy on European Sites. |

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| | | Policy HP9 is a development management policy that prohibits new development to be located within cordon sanitaires (within 400m of Wastewater Treatment Works). This is predominantly a policy targeted at the protection of human receptors and has no direct relevance to European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP9 is screened out from Appropriate Assessment. |
| Policy HP10: Carbon Offsetting for New Builds | This policy stipulates that all new development will need to be supported by a Carbon Assessment (particularly road schemes, published at the time of the planning application). All new builds must identify a carbon-offset strategy. Any development of three or more houses will be expected to deliver land for public amenity, designated for carbon offsetting. Where developments are unable to meet a net gain in carbon capture, off-site compensation is required. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP10 is a development management policy that relates to carbon offsetting in new developments. For example, new developments must undertake a Carbon Assessment and deliver a carbon-offset strategy. However, while positive for the general environment and specifically in relation to the mitigation of climate change, this policy has no direct implications for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP10 is screened out from Appropriate Assessment. |
| Policy HP11: Safeguarding Existing Property Aspects, Wellbeing and the Green Infrastructure | This policy ensures that all developments must ensure the wellbeing of residents by providing adequate biodiversity solutions and space. New development proposals must not have a detrimental impact on the amenity and enjoyment of existing residents. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP11 is a development management policy that maximises the wellbeing of existing residents by requiring adequate biodiversity solutions and space. However, this policy has no bearing on European sites. |

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| | | There are no impact pathways that link this policy to European Sites. Overall, Policy HP11 is screened out from Appropriate Assessment. |
| Policy HP12: Electric Charging Points | This policy requires all new residential developments to deliver the capacity and infrastructure for electric charging points. Communal parking areas and non-residential developments must provide ducting to facilitate the future installation of electric charging points. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP12 is a development management policy that supports new capacity and infrastructure of off-road electric vehicle charging points across the parish. Supporting the shift from fossil-fuelled vehicles towards a vehicle fleet powered by renewable energy sources is an integral step to reducing atmospheric pollution, including in air-quality sensitive European sites such as the Waveney and Little Ouse Valley Fens SAC.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP12 is screened out from Appropriate Assessment. |
| Policy HP13: Self-build | This policy supports opportunities for self-build plots in developments of 10 or more dwellings across the parish. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy HP13 is a development management policy that provides for self-build plots in developments of 10 or more dwellings. However, the provision of self-build plots has no relevance for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy HP13 is screened out from Appropriate Assessment. |
| Transport Policies | | |
| Policy TP1: Local Traffic Generation | This policy identifies that developments of three or more homes will need to quantify the likely level of traffic movements generated, including any cumulative effects. Developers must assess the impact of traffic | The are no Likely Significant Effects of this policy on European Sites. |

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| | and include adequate mitigation measures with regard to road safety. | Policy TP1 requires traffic assessments to be undertaken for residential dwellings of three or more dwellings. Implications of traffic growth for road safety must be adequately assessed and mitigated. However, the requirement for traffic assessments and mitigation measures in relation to human receptors has no relevance for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy TP1 is screened out from Appropriate Assessment. |
| Policy TP2: Protecting Pedestrians, Horse Riders and Cyclists | This policy protects pedestrians, horse riders and cyclists from additional traffic, particularly on Ipswich Road, Norwich Road and Rectory Road. Safeguarding measure will include road calming measures, new crossing points and speed awareness monitors. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy TP2 protects sensitive groups (e.g. pedestrians, horse riders and cyclists) from traffic generated by new residential development. However, the identified protection measures have no relevance for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy TP2 is screened out from Appropriate Assessment. |
| Policy TP3: Supporting and Enhancing Provision for Walking, Cycling and Horse Riding | This policy requires developments of three or more dwellings, employment or community infrastructure buildings to provide adequate features in line with national guidance, including crossing points, safe footpaths and cycleways. These features must contribute to an overall enhanced and joined-up network of rights of way, footpaths and green paths. Developments adjoining existing paths must take account of their setting by avoiding impacts on the functionality of these public networks. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy TP3 is an infrastructure management policy that supports the provision of footpaths and cycleways by development proposals. Furthermore, such features should enhance and be linked up with the existing network of sustainable travel modes. Overall, this is a positive policy as it promotes a modal shift in transport from fossil-fuelled vehicles towards active, more sustainable travel. This is an important step towards reducing atmospheric pollution, including in air-quality |

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| | | sensitive European sites such as the Waveney and Little Ouse Valley Fens SAC.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy TP3 is screened out from Appropriate Assessment. |
| Environmental Policies | | |
| Policy EP1: Green Infrastructure | This policy requires new housing developments to identify and enhance Green Infrastructure networks by providing Green Infrastructure Strategies / Management Plans. Such strategies / plans should protect and enhance the landscape and open spaces in the parish, retain / enhance natural features (e.g. trees, woodlands, hedgerows and springs) and maintain wildlife corridors across the parish. Development with direct harmful impacts on biodiversity (e.g. priority habitats and species) will be refused unless adequate mitigation / compensation is provided. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy EP1 is an environmental protection policy that requires new housing developments to provide Green Infrastructure enhancements, such as through the delivery of Green Infrastructure Strategies. For example, all natural features (e.g. hedgerows, trees and woodlands) must be preserved unless adequate mitigation or compensation is delivered. While positive for the natural environment and ecosystems, this policy has no direct implications for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy EP1 is screened out from Appropriate Assessment. |
| Policy EP2: Key Natural Environment Assets (Local Green Spaces) | This policy protects identified environmental assets from development proposals. Successfully planning applications must contribute rather than detract from these assets. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy EP2 is an environmental protection policy that identifies key environmental assets across the parish that are to be protected from development. While positive for the wider natural environment, this policy has no direct implications for European sites. |

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| | | There are no impact pathways that link this policy to European Sites. Overall, Policy EP2 is screened out from Appropriate Assessment. |
| Policy EP3: Biodiversity Net Gain | This policy requires all developments to retain and enhance biodiversity. All residential developments / conversions must demonstrate a minimum of 10% biodiversity net gain. This requires the understanding and assessment of ecology pre-development. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy EP3 ensures that a minimum of 10% biodiversity net gain will be delivered in all developments. This will require a thorough appraisal and understanding of the ecology of a site pre-development. While the delivery of biodiversity net gain is positive for the natural environment and ecosystems, this policy has no direct implications for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy EP3 is screened out from Appropriate Assessment. |
| Policy EP4: Carbon Capture and Offsetting Within the Environmental Context | This policy stipulates that all developments must encompass carbon capture aspects that balance the carbon footprint of the construction and operational periods. Where developments are unable to meet a net gain in carbon capture, developers will be required to provide off-site compensation within the parish. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy EP4 is an environmental protection policy that requires carbon offsetting in all development proposals. As a minimum, carbon capture measures must balance the carbon footprint of the construction and operational periods. However, while the mitigation of climate change is positive for the natural environment, this policy has no direct implications for European sites.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy EP4 is screened out from Appropriate Assessment. |
| Policy EP5: Dark Skies | This policy designates Dickleburgh and Rushall Parish as a Dark Skies Community, removing light pollution whilst retaining a safe environment for residents. The | The are no Likely Significant Effects of this policy on European Sites. |

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| | parish will work with landowners to create Dark Skies Sanctuaries. | Policy EP5 is an environmental protection policy that designates Dickleburgh and Rushall Parish as a Dark Skies Community and aims to reduce light pollution in the parish. Reducing light spill is an important measure to help reduce disturbance on a range of qualifying species, including bats, birds and otters. However, the European sites relevant to the NP are not designated for species that are sensitive to light pollution.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy EP5 is screened out from Appropriate Assessment. |
| Policy EP6: Hedgerows, Ditches, Trees and Verges | This policy protects all hedgerows, ditches, trees and verges in the parish. Development proposals affecting the integrity of these features, must provide adequate mitigation or compensation of any negative impacts. Compensation should take the form of replacement features with the same value to wildlife than the original feature impacted. For example, replacement hedge plants should be mature and reflect the species mix of the original hedgerow. All replacement features must be protected during the development period and in the long-term. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy EP6 is an environmental protection policy that protects all hedgerows, ditches, trees and verges in the parish. Compensation is required if any of these habitats are lost. This is a positive policy for the environment because it means that these important niches for wildlife are retained.<br><br>There are no impact pathways that link this policy to European Sites. Overall, Policy EP6 is screened out from Appropriate Assessment. |
| Policy EP7: Green Corridors and Protection of Species | This policy stipulates that development proposals must enhance the connectivity of all relevant green corridors. New residential developments must document how the connectivity of green corridors and the movement of species through the sites is secured. | The are no Likely Significant Effects of this policy on European Sites.<br><br>Policy EP7 is an environmental protection policy that enhances the connectivity of green corridors across the parish. This is a positive policy for mobile species that depend on sufficiently connected habitats. However, none of the European sites that are relevant to the NP are designated for mobile species. |

There are no impact pathways that link this policy to European Sites. Overall, Policy EP7 is screened out from Appropriate Assessment.

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