Habitats Regulations Assessment of the Wealden Local Plan

Regulation 18

Wealden District Council

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Quality information

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1. Introduction

Background

1.1 AECOM has been appointed by Wealden District Council (WDC) to undertake a Habitats Regulations Assessments (HRA) of the Wealden Local Plan. The objective of an HRA is to identify any aspects of a Plan that may result in Likely Significant Effects (LSEs) and, where relevant, adverse effects on the integrity of Habitats (previously European) sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites), either in isolation or in combination with other plans and projects. The HRA also advises, as necessary, on appropriate policy mechanisms for delivering mitigation where adverse effects on integrity are identified. Under the Conservation of Habitats and Species Regulations 2017 (as amended), an Appropriate Assessment of impact pathways is required, where a plan or project is likely to have a Likely Significant Effect (LSE) upon a Habitats Site, either alone or in combination with other plans and projects.

1.2 The new Wealden Local Plan will cover the years 2023 to 2040. The Plan will allocate land for housing, employment, mixed-use development and other purposes. For example, 15,729 new dwellings and 84,850m^2 of employment floorspace will be delivered in the authority over the Plan period. The Plan also sets out the policies and proposals to guide the future development in the district during this period. At the same time, the document seeks to protect Wealden's important natural assets, including Habitats sites that are designated for internationally important habitats and species.

1.3 An initial assessment of the designated sites within and surrounding Wealden District, and the impact pathways linking to the proposed growth, highlights that several Habitats sites require consideration, including the Ashdown Forest SPA / SAC, Pevensey Levels SAC / Ramsar, Lewes Downs SAC and Castle Hill SAC.

Legislation

1.4 The 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"). While the UK is no longer a member of the EU, a requirement for Habitats Regulations Assessment continues, as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[1].

1.5 The HRA process applies the 'Precautionary Principle'[2] to Habitats sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the Habitats site(s) in question. To ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the Plan or project in question. Figure 1 below sets out the legislative basis for Appropriate Assessment.

1.6 Plans and projects that are associated with potential adverse impacts on Habitats sites may still be permitted if there are no reasonable alternatives and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

[1] These don't replace the 2017 Regulations but are just another set of amendments.
[2] 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".*

Conservation of Habitats and Species Regulations 2017 (as amended)

The Regulations state that:

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

Figure 1: The legislative basis for Appropriate Assessment

1.7 Over time the phrase 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the Regulations from screening through to IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an 'Appropriate Assessment'.

1.8 In spring 2018 the 'Sweetman' European Court of Justice ruling[3] 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) should **not** be taken into account when forming a view on Likely Significant Effects. Mitigation should instead only be considered at the Appropriate Assessment stage. This HRA has been cognisant of that ruling.

Scope of the Project

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

- All Habitats sites within the boundary of Wealden District; and,
- Other Habitats sites within 10km shown to be linked to development in Wealden through a known 'pathway' (discussed below).

1.10 Generally, it is uncommon for development plans to have significant impacts on Habitats 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 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 Habitats site does not mean that Likely Significant Effects (LSEs) will occur.

1.11 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 Habitats sites. This takes site-specific sensitivities into account, including issues such as nutrient neutrality or water levels, quantity and flow.

1.12 Briefly defined, impact pathways are routes by which the implementation of a policy within a Local Plan document can lead to an effect upon a Habitats site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could affect Habitats sites through, for example, disturbance of ground-nesting birds.

1.13 Given an initial assessment of the relevant Habitats sites and the impact pathways present, and referring to the HRA work that was undertaken for the adopted Core Strategy (2013), this HRA will discuss (at least as far as the LSEs stage) the following Habitats sites:

- Ashdown Forest SPA / SAC (entirely within the district boundary in the north-west of Wealden District);

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

- Pevensey Levels SAC / Ramsar (largely within the district boundary in the south of Wealden District);
- Lewes Downs SAC (approx. 2.9km to the west of the Wealden District boundary in the adjoining authority of Lewes);
- Castle Hill SAC (approx. 9.9km to the west of the Wealden District boundary in the neighbouring authorities of Lewes and Brighton and Hove).

1.14 For the HRA, the views of the statutory nature conservation advisors, namely Natural England, will be sought as part of the consultation process on the scope of the Habitats sites assessed. The distribution of the above Habitats sites in relation to Wealden District 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 Habitats sites are set out in Chapter 3.

1.15 In order to fully inform the screening for LSEs stage, several studies and online information databases have been consulted. These include:

- Future development proposed (and, where available, HRAs) for the adjoining authorities of Lewes, Eastbourne, Rother, Tunbridge Wells, Sevenoaks, Tandridge and Mid Sussex;
- Road traffic statistics from the Department for Transport (https://roadtraffic.dft.gov.uk);
- Journey-to-work data from the Population Census 2011 (https://www.nomisweb.co.uk/census/2011/WU03UK);
- Visitor surveys carried out in the Ashdown Forest SPA / SAC by Footprint Ecology in 2016 and 2021 (the latter largely replicating the methodology of the 2016 survey to provide comparative data for recreational pressure);
- Visitor surveys carried out at four greenspace sites in the vicinity of Ashdown Forest: East Court and Ashplats Wood, Horsted Green, Reedens Meadow and Walshes Park (Ashdown Forest SANGs Surveys 2021 (wealden.gov.uk)).
- South East Water's Water Resources Management Plan 2019;
- The HRAs produced for the adopted Wealden Core Strategy (2013) and those of adjoining authorities;
- Site Improvement Plans and Supplementary Conservation Advice Notes for relevant Habitats sites published by Natural England;
- 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).

Quality Assurance

1.16 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.

1.17 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[4] and general guidance on HRA published by government in July 2019 and 2021[5]. AECOM has also been mindful of the implications of European case law in 2018, notably the Holohan ruling and the People over Wind ruling, both discussed below.

2.2 Figure 2 below outlines the stages of HRA according to current EC guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the Plan until no significant adverse effects remain.

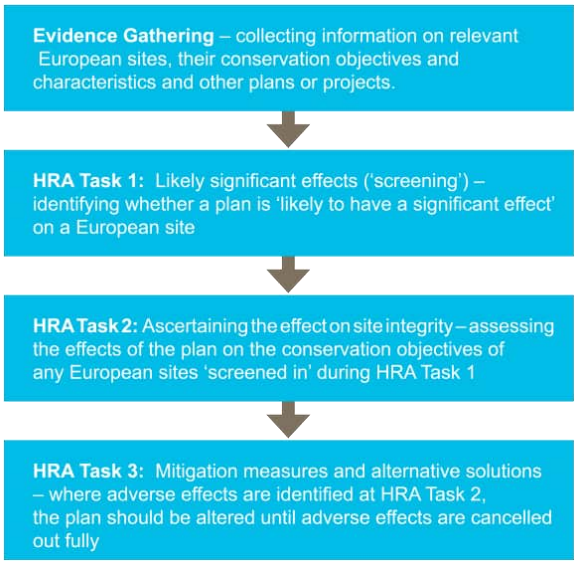


Figure 2: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2021[1].

Description of HRA Tasks

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

2.3 Following evidence gathering, the first stage of any Habitats Regulations Assessment is the screening for 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 any impacts upon Habitats sites, usually because there is no mechanism for a negative interaction. This stage is undertaken in Chapter 5 of this report and in Appendix B.

[4] European Commission (2021): 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.
[5] https://www.gov.uk/guidance/appropriate-assessment and https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

HRA Task 2 – Appropriate Assessment (AA)

2.5 Where it is determined that a conclusion of 'no Likely Significant Effects (LSEs)' cannot be drawn, the analysis proceeds to the next stage of HRA known as Appropriate Assessment. Case law has clarified that 'Appropriate Assessment' is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to Appropriate Assessment compared to the screening stage.

2.6 By virtue of the fact that it follows screening for LSEs, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during Appropriate Assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the Appropriate Assessment would take any policies or allocations that could not be dismissed following the high-level screening and assess the potential for an effect in more detail, with a view to concluding whether there would be a potential for an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the Habitats site(s)). A decision by the European Court of Justice[6] concluded that measures intended to avoid or reduce the harmful effects of a proposed Plan or project on a Habitats site may no longer be considered by competent authorities at the screening for LSEs stage of HRA. That ruling has been taken into account in producing this HRA.

2.7 Also. in 2018 the Holohan ruling[7] was handed down by the European Court of Justice. Among other provisions paragraph 39 of the ruling states that '*As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, … typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area*' [emphasis added]. Due account of this decision has been given in this HRA in relation to the Ashdown Forest SPA, which is designated for mobile ground-nesting birds (although it is to be noted that the qualifying species are not considered to be critically dependent on functionally linked habitats.

HRA Task 3 – Avoidance and Mitigation

2.8 Where necessary, measures are recommended for incorporation into the Plan in order to mitigate and / or avoid adverse effects on Habitats sites. There is considerable precedent concerning the level of detail that a Local Plan document needs to contain regarding mitigation for impact pathways on Habitats sites (e.g. regarding recreational pressure). The implication of this precedent is that it is not necessary for all measures to be fully developed prior to adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.

2.9 When discussing mitigation for a Local Plan, 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 a Local Plan document is a high-level policy document.

2.10 In any Local Plan, there are numerous policies for which there is a limit to the degree of assessment that is possible at the Plan level. This is because either:

- The policy in question does not contain any specifics as to what will be delivered or where, and so cannot be assessed in detail at the Plan level. In these cases, the Appropriate Assessment focusses on precautionary mitigation that can be included in the plan to ensure that whatever proposals come forward will not result in adverse effects on integrity; or
- The nature of potential impacts (e.g. visual and noise disturbance arising from construction or loss of functionally linked habitat) are related to how the development will be designed and constructed, and therefore cannot be assessed in detail at the plan level. In these instances, the Appropriate Assessment focusses on available mitigation measures, the extent to which such measures would be achievable and effective, and

[6] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)
[7] Case C-461/17

whether an adequate protective framework exists to ensure that the policy would not lead to an adverse effect on the integrity of any internationally designated sites.

2.11 There are several court rulings of relevance to the level of detail required in the HRA for a plan. The Court of Appeal[8] has ruled that providing the Council (competent authority) is 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 planning permissions (rather than a Plan level document)[9]. 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'*.

2.12 The same principle has also been applied in Buckinghamshire with regard to the former Wycombe District Local Plan. In paragraph 175 of his ruling in case [2020] EWHC 1984 (Admin), 2020 WL 04248573 (Keep Bourne End Green v Buckinghamshire Council (formerly Wycombe District Council), The Secretary of State for Housing, Communities and Local Government v Catesby Estates Plc, Leopold Noe) when a policy in this plan was challenged for being insufficiently detailed regarding mitigation for Habitats sites, Mr Justice Holgate noted that '*I accept the Council's submission that, as a matter of law, the wording of Policy BE2 did not need to go further* [and provide full details regarding the mitigation for impacts on a European site that would be required]. *It was appropriate for the Plan as a development plan forming part of a multi-stage decision-making process, which includes a more detailed application for the grant of a development consent and a further HRA at that point. It was sufficient for the examination and adoption of the Plan that there was sufficient information before the Council enabling it to be satisfied, as it was, that the proposed mitigation could be achieved in practice… The requirement of s.106 contributions to a "suitable natural alternative green space" ("SANG") is a well-established form of mitigation under the 2017 Regulations for dealing with recreational pressure on a European protected site. The wording of Policy BE2, understood within the multi-stage nature of the statutory scheme, complies with the requirements of the Habitats Directive'*.

2.13 In these instances, the advice of Advocate-General Kokott[10] is also worth considering. She commented that: *'It would …hardly be proper to require a greater level of detail in preceding plans* [rather than planning applications] *or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure* ***to the extent possible on the basis of the precision of the plan***. ***This assessment is to be updated with increasing specificity in subsequent stages of the procedure'*** [emphasis added].

[8]No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015
[9]High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015
[10] Opinion of Advocate General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN

3. Habitats Sites

Ashdown Forest SAC

Introduction

3.1 The Ashdown Forest SAC is an extensive area of common land located between East Grinstead and Crowborough, and entirely within Wealden District. The underlying geology of the Ashdown Sands, in combination with the wetter and cooler local climate, gives rise to sandy soils, which are characteristically acid, clay and nutrient-poor. In turn, this soil type has promoted the development of heathland, valley mire and damp woodland communities.

3.2 Despite a recent acceleration in the development of woodland, Ashdown Forest remains one of the largest single continuous blocks of lowland heath in south-east England. A range of typical heathland flora is supported, including heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), gorse (*Ulex europaeus*) and dwarf gorse (*Ulex minor*). A rich invertebrate fauna (e.g. beetles, dragonflies, damselflies and butterflies) and unique assemblage of heath and woodland birds critically depend on the SAC habitat (see section on the overlapping Ashdown Forest SPA below).

3.3 The damp heath woodland may be varied, including birch (*Betula sp.*, acting as primary colonisers), oak (*Quercus robur*), willow (*Salix sp.*) and pine (*Pinus* sp.). In areas where grazing management has been limited, woodland often encroaches on former heath, forming dense and shaded areas with sparse ground flora. In many instances where Natural England's site condition assessment identifies sub-components as 'unfavourable declining', a lack of grazing management has been identified as a main contributing factor to negative site condition.

Qualifying Features[11]

3.4 Annex I habitats:

- Northern Atlantic wet heathland with *Erica tetralix*
- European dry heaths

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

- Great-crested newt *Triturus cristatus*

Conservation Objectives[12]

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

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

- The extent and distribution of 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

[11] Available at: https://sac.jncc.gov.uk/site/UK0030080 [Accessed on the 21/10/2021]
[12] Available at: http://publications.naturalengland.org.uk/publication/6183967367626752 [Accessed on the 21/10/2021]

- 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[13]

3.8 The following threats / pressures to the integrity of the Ashdown Forest SAC have been identified in Natural England's Site Improvement Plan and Supplementary Advice on Conservation Objectives:

- Change in land management
- Air pollution: Impact of atmospheric nitrogen deposition
- Public access / damage
- Hydrological changes

Ashdown Forest SPA

Introduction

3.9 The mosaic of habitats, and specifically the heath and woodland, in Ashdown Forest harbours a high species richness of birds. These include woodland specialists (e.g. woodcock, tree pipits, siskins, lesser redpoll) as well as various birds of prey (e.g. buzzards, sparrowhawk, hobby). However, most notably, Ashdown Forest harbours specialist species that critically depend on the heath for survival, including nightjar and Dartford warbler.

3.10 The Dartford warbler depends on mature, dry heath habitats (especially gorse) in good condition for surviving the winter. It is a ground-nesting bird that builds a grassy, cup-shaped nest under the protective cover of dense heather or gorse. Similarly, nightjar usually build their nests in small gaps in dry heather, which provide shelter and protection from potential predators. Both species depend on the rich invertebrate fauna that is supported by the heath.

Qualifying Species[14]

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

Annex I breeding species:

- European nightjar (*Caprimulgus europaeus*) – 35 pairs (1% of the breeding population in GB)
- Dartford warbler (*Sylvia undata*) – 29 pairs (1.8% of the breeding population in GB)

Conservation Objectives[15]

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

3.13 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;

[13] Available at: http://publications.naturalengland.org.uk/publication/5793096570765312 [Accessed on the 21/10/2021]
[14] Available at: http://publications.naturalengland.org.uk/publication/6399918323269632 [Accessed on the 21/10/2021]
[15] Available at: http://publications.naturalengland.org.uk/publication/6399918323269632 [Accessed on the 21/10/2021]

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

Threats / Pressures to Site Integrity[16]

3.14 The following threats / pressures to the integrity of the Ashdown Forest SPA have been identified in Natural England's Site Improvement Plan and Supplementary Advice on Conservation Objectives:

- Change in land management
- Air pollution: Impact of atmospheric nitrogen deposition
- Public access / disturbance
- Hydrological changes

Pevensey Levels SAC / Ramsar

Introduction

3.15 The Pevensey Levels SAC is a 3,585.38ha large site that encompasses humid / mesophile grassland (97.5%) and inland water bodies (2.5%). It is situated in a low-lying area between Eastbourne and Bexhill in East Sussex in the Pevensey Levels National Character Area. The SAC's underlying geology comprises sandstones and clays, overlain by low-permeability marine silts and clay. Due to its poor drainage the site is associated with long periods of standing water, especially in winter, which attract large flocks of overwintering waterfowl and waders.

3.16 A high proportion of the SAC's wet meadows are extensively grazed and actively maintained by systems of drainage channels and dykes. The freshwater ditches criss-cross the site and reflect successive reclamation efforts dating back to the 13th century. These harbour significant botanical interest, including a population of the small little whirlpool ram's-horn snail (*Anisus vorticulus*), which is the qualifying feature of the SAC. Additionally, the site supports extensive wetland communities, including nationally rare aquatic plants and invertebrates, as well as a notable assemblage of breeding and wintering waterfowl.

3.17 In addition to its ecological importance, the Pevensey Levels SAC is important as a public water supply, wet fencing for livestock and a flood storage reservoir. It is involved in both groundwater recharge / discharge and maintenance of water quality through nutrient removal. Its location adjoining the English Channel means that the site is further important for shoreline stabilisation and dissipation of erosive forces.

SAC Qualifying Features[17]

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

- Ramshorn snail Anisus vorticulus

[16] Available at: http://publications.naturalengland.org.uk/publication/5793096570765312 [Accessed on the 21/10/2021]
[17] Available at: https://sac.jncc.gov.uk/site/UK0030367 [Accessed on the 21/10/2021]

Ramsar Qualifying Features[18]

3.19 The Pevensey Levels are designated as a Ramsar for the following criteria:

Ramsar Criterion 2

The site supports an outstanding assemblage of wetland plants and invertebrates including many British Red Data Book species.

Ramsar Criterion 3

The site supports 68% of vascular plant species in Great Britain that can be described as aquatic. It is probably the best site in Britain for freshwater molluscs, one of the five best sites for aquatic beetles *Coleoptera* and supports an outstanding assemblage of dragonflies *Odonata*.

SAC Conservation Objectives[19]

3.20 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;

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

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

Threats / Pressures to Site Integrity of the SAC[20]

3.22 The following threats / pressures to the integrity of the Pevensey Levels SAC are identified in Natural England's Site Improvement Plan:

- Inappropriate water levels
- Invasive species
- Water pollution

Lewes Downs SAC

Introduction

3.23 The Lewes Downs SAC is a 146ha large site comprising a range of habitats, including dry grassland / steppes (85%), heath / scrub (5%), humid / mesophile grassland (5%) and improved grassland (5%). The SAC encompasses an isolated block of download that forms part of the South Downs. It is significant for its biodiversity-rich chalk grassland and scrub vegetation, which include several species of nationally rare orchid. In turn, these habitats support rich invertebrate fauna (including a rare moth) and a breeding population of downland birds. The majority of the site comprises unimproved species-rich chalk grassland that is distributed on steep slopes.

3.24 The qualifying feature of the SAC are semi-natural dry grasslands and scrubland facies on calcareous substrates. *Festuco-Brometalia* grassland is predominantly found at low to moderate

[18] Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11053.pdf [Accessed on the 21/10/2021]
[19] Available at: http://publications.naturalengland.org.uk/publication/6293054151458816 [Accessed on the 21/10/2021]
[20] Available at: http://publications.naturalengland.org.uk/publication/6057793526169600 [Accessed on the 21/10/2021]

altitudes and is maintained by grazing. Rare plants associated with this qualifying habitat include purple milk-vetch *Astragalus danicus*, dwarf sedge *Carex humilis*, spotted cat's-ear *Hypochaeris maculata*, spring cinquefoil *Potentilla tabernaemontani*, pasqueflower *Pulsatilla vulgaris*, bastard-toadflax *Thesium humifusum* and the Annex II species early gentian *Gentianella anglica*. Notable bryophytes and lichens are also associated with this habitat.

Qualifying Features[21]

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

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

Conservation Objectives[22]

3.26 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;

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

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

Threats / Pressures to Site Integrity[23]

3.28 The following threats / pressures to the integrity of the Lewes Downs SAC have been identified in Natural England's Site Improvement Plan:

- Game management: Pheasant rearing
- Undergrazing
- Public access / disturbance
- Air pollution: Impact of atmospheric nitrogen deposition

Castle Hill SAC

Introduction

3.29 The Castle Hill SAC is a 114.54ha large site that encompasses dry grassland / steppes (90%), humid / mesophile grassland (5%) and heath / scrub (5%). It is situated in the South Downs National Character Area and South Downs National Park. The site is one of the best examples in East Sussex of the nationally uncommon chalk grassland habitat. Particular variations of plant and animal communities are seen along gradients of aspect and slope. Notable species in the sward include sheep's-fescue Festuca ovina, meadow oat-grass Helictotrichon pratense, upright brome Bromopsis erecta and tor-grass Brachypodium pinnatum.

3.30 The plant communities within the SAC also support a number of rare and scarce species, including spider-orchid *Ophrys sphegodes*, burnt orchid *Orchis ustulate* and early gentian *Gentianella anglica*. Scrub compartments provide breeding habitat for a range of downland birds,

[21] Available at: https://sac.jncc.gov.uk/site/UK0012832 [Accessed on the 21/10/2021]
[22] Available at: http://publications.naturalengland.org.uk/publication/4618459505754112 [Accessed on the 21/10/2021]
[23] Available at: http://publications.naturalengland.org.uk/publication/5857326774878208 [Accessed on the 21/10/2021]

such as yellowhammer, corn bunting, linnet and whitethroat. A rich orthopteran fauna is also associated with the site, including great green bush cricket and wart-biter grasshopper.

Qualifying Features[24]

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

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

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

- Early gentian Gentianella anglica

Conservation Objectives[25]

3.33 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;

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

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

Threats / Pressures to Site Integrity[26]

3.35 The following threats / pressures to the integrity of the Castle Hill SAC are identified in Natural England's Site Improvement Plan:

- Undergrazing
- Fertiliser use
- Air pollution: Impact of atmospheric nitrogen deposition

[24] Available at: https://sac.jncc.gov.uk/site/UK0012836 [Accessed on the 21/10/2021]
[25] Available at: http://publications.naturalengland.org.uk/publication/6088288314064896 [Accessed on the 21/10/2021]
[26] Available at: http://publications.naturalengland.org.uk/publication/6241234389565440 [Accessed on the 21/10/2021]

4. Identified Impact Pathways

Atmospheric Pollution (Nitrogen Deposition)

4.1 The main emitted pollutants of concern for Habitats sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2) and are summarised in Table 1. Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[27]. NOx can also be toxic at very high concentrations (far above the annual average Critical Level). Elevated NOx and NH_3 also increases the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems depending on sensitivity, extent of area affected and other factors. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This can have adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats[28] [29].

Table 1: Main sources and effects of air pollutants on habitats and species[30]

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

[27] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[28] 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.
[29] 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.
[30] Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/).

Pollutant	Source	Effects on habitats and species
Ammonia (NH_3)	Ammonia is a reactive, soluble alkaline gas 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. It is also emitted from the catalytic converters of certain vehicles, particularly petrol cars. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4+) - containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH_4+ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	Nitrogen oxides are mostly produced in combustion processes. Half of NO_X emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes. Nitrogen oxides, particularly from traffic, have been consistently falling for many years, notwithstanding an increase in traffic on the network, due to improved vehicle emissions technology.	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. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices but at a local scale road traffic makes a significant contribution. The N pollutants together are a large contributor to acidification (see above).	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above). Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb	Concentrations of O_3 above 40 ppb can be toxic to both humans and wildlife, and can affect buildings. 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

Pollutant	Source	Effects on habitats and species
	('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	forest production and altered species composition in semi-natural plant communities.

4.2 Emissions of NOx and, at a local scale, ammonia can reasonably be expected to increase as a result of the Plan, primarily due to an increase in the volume of commuter traffic associated with housing growth.

4.3 The World Health Organisation has the following critical thresholds for plant communities: The critical NOx concentration (critical threshold) for the protection of vegetation is 30 μgm^{-3}, that for ammonia is 3 μgm^{-3} (1 μgm^{-3} for lower plants) and the threshold for sulphur dioxide is 20 μgm^{-3}. Additionally, ecological studies have determined 'Critical Loads'[31] of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH_3).

4.4 According to the Department of Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roads to local pollution levels is insignificant (Figure 3 and reference [32]). Therefore, this distance has been used throughout this HRA to determine whether Likely Significant Effects (LSEs) on sensitive Habitats sites may arise due to implementation of the Plan.

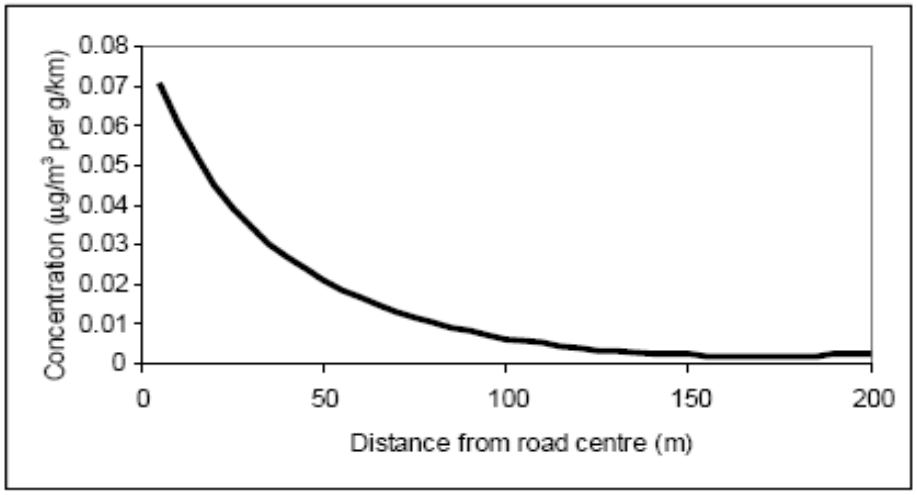


Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT[33])

4.5 . Several studies have been previously commissioned by Wealden District Council to consider the impact of traffic associated with new housing and employment development at Ashdown Forest. For example, an Air Quality Monitoring and Modelling Study was undertaken by Air Quality Consultants l, which highlighted that the annual mean critical levels for both NH_3 and NOx are being exceeded in close proximity to the roads traversing the SAC. However, it has been generally been difficult to attribute variation in these habitats, primarily due to a range of confounding variables such as grazing management, visitor pressure and other roadside physical disturbances (e.g. salt spray, particulates and debris). Another study undertaken by ECUS on behalf of Wealden District Council, investigated ecological impacts caused by nitrogen deposition along 15 road transects in the Ashdown Forest SAC. The study determined that the transects showed low overall species richness, which tended to decline with distance from the road (in other words diversity was greater closer to the road than more distant, the opposite of what one might expect if nitrogen deposition were the main factor governing vegetation composition). Furthermore, there was no correlation between soil total nitrogen levels with distance from the

[31] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.
[32] Available at: http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013 [Accessed on the 21/10/2021]
[33] Available at: http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf [Accessed on the 21/10/2021]

road, implying that road traffic alone clearly does not account for soil chemistry variation and species composition. As a general rule, and as confirmed by Natural England via the Discretionary Advice Service, undergrazing and inadequate management is the primary reason as to why this site does not support good quality heathland. Roads can have a significant effect, but their effect will be felt closest to the road which is generally the habitat less representative of SAC features and is affected by a range of other factors controlling vegetation composition, known as edge effects. Away from the roadside, agriculture makes the greatest contribution to nitrogen deposition across the SAC. Notwithstanding this, atmospheric pollution from road traffic clearly continues to be a contributing threat to the integrity of the Ashdown Forest SAC and requires particular attention in HRAs of Local Plans.

4.6 The following Habitats sites within 10km of the Wealden District boundary are sensitive to atmospheric nitrogen deposition, primarily due to the presence of nutrient-limited habitats and / or species (the sites in **bold** are taken forward into the following HRA chapters), and lie within 200m of relevant roads:

- **Ashdown Forest SAC / SPA (located in the north-west of Wealden District)**
- **Lewes Downs SAC (located approx. 2.9km to the west of Wealden District in the adjoining authority of Lewes)**

Recreational Pressure

4.7 There is concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfill conservation objectives while also providing recreational opportunity. Various research reports have provided compelling links between changes in housing and access levels[34], and impacts on Habitats protected sites[35] [36]. This applies to any habitat, but recreational pressure from housing growth is of particular significance for Habitats sites designated for their bird interest. Different Habitats sites are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex. HRAs of planning documents tend to focus on recreational sources of disturbance as a result of new residents[37].

Trampling Damage, Nutrient Enrichment and Wildfires

4.8 Most terrestrial habitats (especially heathland, woodland and dune systems) can be affected by trampling and other mechanical damage, which dislodges individual plants, leads to soil compaction and erosion. The following studies have assessed the impact of trampling associated with different recreational activities in different habitats:

- Wilson & Seney)[38] examined the degree of track erosion caused by hikers, motorcyclists, horse riders and cyclists in 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.

[34] Weitowitz D.C., Panter C., Hoskin R. & Liley D. (2019). The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* **5**. https://doi.org/10.1093/jue/juz019
[35] 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.
[36] 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.
[37] 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'.
[38] Wilson, J.P. & J.P. Seney. (1994). Erosional impact of hikers, horses, motorcycles and off-road bicycles on mountain trails in Montana. *Mountain Research and Development* **14**:77-88

- Cole et al[39] conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphology was found to explain more variation in response than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.

- Cole [40] conducted a follow-up study (across four vegetation types) in which shoe type (trainers or walking boots) and trampling weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no differential impact on vegetation cover.

- Cole & Spildie[41] experimentally compared the effects of off-track trampling by hikers and horse riders (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse trampling was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance but recovered rapidly. Generally, it was shown that higher trampling intensities caused more disturbance.

- In heathland sites, trampling damage can affect the value of a site to wildlife. For example, heavy use of sandy tracks loosens and continuously disturbs sand particles, reducing the habitat's suitability for invertebrates[42]. Species that burrow into flat surfaces such as the centres of paths, are likely to be particularly vulnerable, as the loose sediment can no longer maintain their burrow. In some instances, nature conservation bodies and local authorities resort to hardening paths to prevent further erosion. However, this is concomitant with the loss of habitat used by wildlife, such as sand lizards and burrowing invertebrates.

4.9 A major concern for nutrient-poor terrestrial habitats (e.g. heathlands, sand dunes, bogs and fens) is nutrient enrichment associated with dog fouling (addressed in various reviews, e.g.[43]). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a more spread out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually[44]. While there is limited information on the chemical constituents of dog faeces, nitrogen is one of the main components[45].

[39] Cole, D.N. (1995a). Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* **32**: 203-214
Cole, D.N. (1995b). Experimental trampling of vegetation. II. Predictors of resistance and resilience. *Journal of Applied Ecology* **32**: 215-224
[40] Cole, D.N. (1995c). Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.
[41] Cole, D.N., Spildie, D.R. (1998). Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* **53**: 61-71
[42] Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.
[43] Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. (2005). Dogs, access and nature conservation. English Nature Research Report, Peterborough.
[44] Barnard A. (2003). Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* **11**:16-19.
[45] Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

Nutrient availability is the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in a shift towards plant communities that are more typical of improved grasslands.

Bird Disturbance

4.10 Human activity can affect birds either directly (e.g. by eliciting flight responses) or indirectly (e.g. by damaging habitat or reducing bird fitness in less obvious ways such as through inducing stress responses). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to much subtler behavioural (e.g. alterations in feeding behaviour, avoidance of certain areas and use of sub optimal areas etc.) and physiological changes (e.g. an increase in heart rate). While such changes are less noticeable, they might result in major population-level changes by altering the balance between immigration / birth and emigration / death[46].

4.11 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and time spent responding to disturbance is time that is not spent feeding[47]. Disturbance therefore increases energetic expenditure while reducing energetic intake, which can adversely affect the 'condition' and ultimately survival of birds. Additionally, displacement of birds from one feeding site to another can increase the pressure on the resources available within alternative foraging sites, which must sustain a greater number of birds[48]. Moreover, the higher proportion of time a breeding bird spends away from its nest, the more likely it is that eggs will cool and the more vulnerable they, or any nestlings, are to predators. Recreational effects on ground-nesting birds are particularly severe, with many studies concluding that urban sites support lower densities of key species, such as stone curlew and nightjar[49] [50].

4.12 Several factors (e.g. seasonality, type of recreational activity) may have pronounced impacts on the nature of bird disturbance. Disturbance in winter may be more impactful because food shortages make birds more vulnerable at this time of the year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and lower overall sensitivity of birds outside the breeding season. Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird diversity and abundance compared to hiking[51]. Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers[52]. Furthermore, differences in on-site route lengths and usage patterns likely imply that key spatial and temporal parameters (such as the area of a site potentially impacted and the frequency of disturbance) will also differ between recreational activities. This suggests that activity type is a factor that ought to be taken into account in HRAs.

4.13 With respect to heathland birds specifically, Liley and Clarke[53,54] found that the density of European nightjar *Caprimulgus europaeus* was directly related to the amount of surrounding development, with sites surrounded by higher levels of development supporting fewer nightjars. The species' breeding success appears to be much higher at less visited sites[55], with path

[46] Riley, J. (2003). Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.
[47] Riddington, R. *et al*. (1996). The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* **43**:269-279.
[48] Gill, J.A., Sutherland, W.J. & Norris, K. (1998). The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* **12**: 67-72.
[49] Clarke R.T., Liley D., Sharp J.M., Green R.E. (2013). Building development and roads: Implications for the distribution of stone curlews across the Brecks. *PLOS ONE*. https://doi:10.1371/journal.pone.0072984.
[50] Liley D. & Clarke R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. Biological Conservation **114**: 219-230.
[51] Banks P.B., Bryant J.Y. (2007). Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* **3**: 14pp.
[52] Miller S.G., Knight R.L., Miller C.K. (2001). Wildlife responses to pedestrians and dogs. *Wildlife Society Bulletin* **29**: 124-132.
[53] Liley, D. & Clarke, R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation* **114**: 219-230.
[54] Liley, D. & Clarke, R.T. (2002) The impact of human disturbance and human development on key heathland bird species in Dorset. Sixth National Conference (eds Underhill, J.C. & Liley, D.). RSPB, Bournemouth.
[55] Murison, G. (2002). The Impact of Human Disturbance on the Breeding Success of the Nightjar *Caprimulgus europaeus* on Heathlands in South Dorset, England. English Nature.

proximity correlating strongly with nest failure, up to 225m from the path edge. Although Dartford warblers do not appear to be as sensitive to human disturbance (possibly as they are not ground-nesting), their breeding parameters are still affected by disturbance levels from humans and their pets[56].

Summary

4.14 Several Habitats sites in Wealden District and adjoining authorities are designated for habitats and species that are sensitive to recreational pressure, including the Ashdown Forest SAC (supports parcels of dry and wet heathland), Ashdown Forest SPA (supports nightjar and Dartford warbler, which nest on or close to the ground), Lewes Downs SAC (supports semi-natural dry grassland and scrubland habitat on calcareous substrates) and the Castle Hill SAC (designated for semi-natural dry grassland and scrubland). The increase in residential development allocated in the Wealden Local Plan would lead to an increase in the local population and demand for access to outdoor spaces. The HRA process needs to adequately assess potential recreational pressure effects of the Plan on these Habitats sites.

4.15 Overall, the following Habitats sites within 10km of the Wealden District boundary are sensitive to increased recreational access, due to the allocation of residential development in the Wealden Local Plan (the sites in **bold** are taken forward into the following HRA chapters):

- **Ashdown Forest SAC / SPA (located in the north-west of Wealden District)**
- **Lewes Downs SAC (located approx. 2.9km to the west of Wealden District in the adjoining authority of Lewes)**
- **Castle Hill SAC (located approx. 9.9km to the west of Wealden District in the authorities of Lewes and Brighton and Hove)**

Water Quantity, Level and Flow

4.16 The unique nature of wetlands combines shallow water, high levels of nutrients and high primary productivity. These conditions are ideal for the growth of organisms at the basal level of food webs, which sustain a wide range of birds, mammals, fish and amphibians. Overwintering and migrating wetland bird species are particularly reliant on these food sources, as they need to build up enough nutritional reserves to sustain their long migration routes.

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

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

4.18 Specifically, the Site Improvement Plan for the Pevensey Levels SAC[57] , and its Supplementary Advice on Conservation Objectives, identifies inappropriate water levels as a primary threat to

[56] Murison, G.C. (2007). The impact of human disturbance, urbanisation and habitat type on a Dartford warbler *Sylvia undata* population. PhD thesis, University of East Anglia.
[57] Available at: http://publications.naturalengland.org.uk/publication/6057793526169600 [Accessed on the 22/10/2021]

site integrity. The SAC (and overlapping Ramsar) is a complex managed hydrological system in which adequate water levels must be maintained to provide optimum habitat to the ram's-horn snail and British Red Data Book wetland invertebrates. The site has a complex hydrology which is subject to a water level management plan. The Environment Agency and the Pevensey and Cuckmere Water Level Management Board are jointly responsibility for delivering this plan. Levels are controlled by a series of sluices and pumping stations. Maintaining adequate water levels (0.3cm below ditch neck) is critical to the feature. A reduced freshwater supply due to higher abstraction volumes and increased surface water runoff from impermeable urban surfaces may threaten the hydrological conditions within the SAC / Ramsar. It is to be noted that the WwTWs at Hailsham play an integral role in maintaining freshwater supply to the SAC / Ramsar in the summer months via the discharge of treated effluent. The Ashdown Forest SAC, partly designated for its areas of wet heath, is also sensitive to hydrological changes resulting from the Plan.

4.19 The emerging Wealden Local Plan could result in changes to the water quantity, level and flow in the catchment of several Habitats sites, if it required additional abstractions from sources that are hydrologically connected to these sites. This may alter the water level within the designated sites themselves with potential cascading effects on qualifying species or habitats. Overall, the following Habitats sites are considered to be sensitive to changes in water quantity, level and flow (**sites in bold are taken forward to the following chapters of the HRA**):

- **Pevensey Levels SAC / Ramsar (located in the south-east part of Wealden District and partly in the adjoining authority of Rother)**
- **Ashdown Forest SAC (located in the north-west of Wealden District)**

Water Quality

4.20 Water quality is an important determinant of the nature and condition of qualifying habitats and species in Habitats sites. Declining 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 have additional detrimental effects (even at lower levels), such as 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, exacerbating the ongoing oxygen depletion. In the marine environment, nitrogen is the main growth-limiting plant nutrient and so eutrophication is primarily associated with discharges containing bioavailable nitrogen.
- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

4.21 The main risk associated with the Wealden Local Plan is an increase in the discharge of treated sewage effluent from Wastewater Treatment Works (WwTWs) serving Wealden District. This may increase nutrient concentrations (phosphorus is the main limiting nutrient in freshwater habitats) in Habitats sites that are hydrologically connected to waterbodies receiving sewage effluent.

4.22 The Local Plan assessed in this HRA provides for development in the area served by Southern Water, responsible for the public water supply and wastewater treatment in large areas of south England. The potential implications of growth for the WwTWs serving Wealden District are outlined in Table 2 below.

Table 2: Wastewater Treatment Works (WwTWs) serving Wealden District, the growth allocated and resulting HRA implications.

WwTWs serving	Residential and employment	HRA implications

Wealden District	development quantum allocated in the Wealden Local Plan	
Hailsham North, Hailsham South, Buxted, Uckfield, Ripe, Redgate Mill (Crowborough), East Hoathly, Fletching, Hartfield, Vines Cross, Windmill Hill, Maresfield, Hooe and Whitegates Lane (Wadhurst). Certain locations in the district are served by WwTWs outside the District including the Tunbridge Wells South and Eastbourne WTWs. (operated by Southern Water)	15,729 new residential dwellings, at least 84,850m2 of employment floorspace and 3,300 sqm and 4,800 sqm of convenience retail floorspace and between 1,300 sqm and 1,800 sqm of comparison retail floorspace	Discharge of treated sewage effluent and industrial pollutants into local watercourses (e.g. the Hurst Haven at Hailsham Waterbody and Horse Eye Sewer Waterbody) that are in hydrological continuity with the Pevensey Levels SAC / Ramsar and could affect water quality in that site.

4.23 Overall, the following Habitats sites are sensitive to negative changes in water quality, primarily due to increased discharge volumes of treated sewage effluent from WwTWs (**sites in bold are taken forward to the following chapters of the HRA**):

- **Pevensey Levels SAC / Ramsar (located in the south-east part of Wealden District and partly in the adjoining authority of Rother)**

5. Screening for Likely Significant Effects (LSEs)

Atmospheric Pollution (Nitrogen Deposition)

Ashdown Forest SAC

5.1 The Ashdown Forest SAC is primarily designated for its extensive, continuous block of lowland heathland, comprising northern wet heath with *Erica tetralix* and European dry heath. The Air Pollution Information System (APIS) identifies both habitats as being sensitive to atmospheric pollution with a nitrogen Critical Load (CL) of 5-15 kg N/ha/yr. This was lowered nationally for heathland in spring 2023, from the previous range of 10-20 kgN/ha/yr. An exceedance of the CL may lead to a change in botanical community composition, favouring more competitive grasses over heather species. High nitrogen concentrations can also make ericaceous species more susceptible to impacts from frost and drought. In dry heaths, elevated nitrogen levels may lead to a decline in lichens and changes in plant biochemistry. The current deposition trends for the SAC indicate that the minimum CL is already being exceeded, with typical background nitrogen deposition recorded as c. 19 kg N/ha/yr with higher levels closer to the roads.

5.2 The SAC sits entirely within Wealden District and is traversed by three potential commuter roads (A22, A275 and A26) as well as numerous smaller roads. Review of habitat mapping on MAGIC indicates that extensive fragments of heathland are located within the 200m screening distance for roadside atmospheric pollution effects from vehicular traffic on all of those roads. Furthermore, the two roads are likely to be key routes for commuters travelling to / from the adjoining authorities (connecting Uckfield to East Grinstead and Tunbridge Wells – A22 and A26 respectively, and Lewes to East Grinstead – A275). Natural England's Site Improvement Plan highlights atmospheric pollution as being second to inadequate land management as a pressure on the integrity of the SAC, with parts of the site experiencing declines in heather coverage and becoming increasingly dominated by grasses. **The Wealden Local Plan will significantly increase the population and employment opportunities within the District, resulting in more commuter journeys being undertaken within 200m of sensitive habitats. Therefore, Likely Significant Effects (LSEs), both alone and in-combination, cannot be excluded and the site is screened in for Appropriate Assessment regarding this impact pathway.**

5.3 Great-crested newts are an Annex II qualifying feature of the SAC, which rely on freshwater ponds for reproduction, with larvae emerging between August and October. They prefer well vegetated ponds in a range of settings, including pastoral and arable farmland. While it is noted that the newts do not necessarily require high water quality, APIS identifies the species' broad habitat (standing open water and canals) as sensitive to atmospheric pollution. However, the main limiting nutrient in freshwater is phosphorus (which is not associated with road traffic), with nitrogen being of much lower importance. Great crested newts will use a wide range of terrestrial habitats provided they provide sufficient cover, and therefore the relatively subtle botanical effects of changes in nitrogen deposition will not affect their habitat use. Therefore, this HRA does not consider great-crested newts further in relation to atmospheric pollution.

Lewes Downs SAC

5.4 The Lewes Downs SAC is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates (includes important orchid sites) for which APIS identifies a CL of 10-20 kg N/ha/yr. This is a downwards revision undertaken in spring 2023 for all calcareous grassland sites, as the previous minimum part of the critical load range was 15 kgN/ha/yr. In this habitat type excessive nitrogen deposition can lead to an increase in tall grasses, a decrease in botanical diversity, nitrogen leaching and surface acidification. The current typical background nitrogen deposition to the SAC according to APIS is c. 13 kg N/ha/yr, which exceeds the minimum CL identified for the site since spring 2023. The SAC also comprises important lichen and bryophyte

elements that are sensitive to ammonia (NH_3) deposition. Natural England's Site Improvement Plan for the SAC identifies atmospheric pollution as a pressure on the site, aiming to '*control, reduce and ameliorate atmospheric nitrogen impacts*'.

5.5 The SAC stretches along the A26, which in turn runs on a north-south axis to the east of the town of Lewes. Habitat mapping on APIS shows that there is lowland calcareous grassland within approx. 11m from the A26 to the north of Cuilfail. Calcareous grassland lies within the 200m screening distance at several other locations along this stretch of road. The A26 is the main strategic route that connects the authorities of Wealden and Lewes, implying that it is reasonable to expect an increase in commuter traffic on the road due to implementation of the Plan. **Therefore, LSEs of the Wealden Local Plan on the Lewes Downs SAC regarding atmospheric pollution cannot be excluded and the site is screened in for Appropriate Assessment regarding this impact pathway.**

Castle Hill SAC

5.6 The Castle Hill SAC is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates (this includes important orchid sites) that have a nitrogen CL of 10-20 kg N/ha/yr (see previous section). Natural England's Site Improvement Plan (SIP) list the impact of atmospheric nitrogen deposition as a key pressure to the site with potential knock-on effects on community composition. However, a review of the road network shows that there are no major ('A') roads within 200m of the Castle Hill SAC (the closest point being approx. 1.7km from the A27. Therefore, it is concluded that road traffic is unlikely to be a major contributor to nitrogen deposition across the SAC, especially compared to nitrogen from agricultural sources. Indeed, the SIP specifies that fertiliser use on land bordering the SAC, such as on arable land parcels sloping down towards the site, is a major contributor of nitrogen through erosion, leaching and runoff. Overall, LSEs of the Wealden Local Plan on the Castle Hill SAC regarding atmospheric pollution can be excluded and the site is screened out from Appropriate Assessment in relation to this impact pathway.

Policy Screening

5.7 A review of the emerging WLP indicates that LSEs in relation to atmospheric pollution cannot be excluded for several policies due to the allocation of residential / employment growth and the concomitant increase in commuter traffic. The following policies need to be taken forward to Appropriate Assessment:

- Policy SS2 (Provision of Homes) – identifies the delivery of 15,729 dwellings over the WLP period (of which 5,616 dwellings will be new allocations);
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period;
- Policy SS4 (Retail Provision and Town Centres) – sets out the retail hierarchy and where specific town centre uses will be located, thereby dictating a spatial element of growth;
- Policy SS5 (Provision of Employment Floorspace) – stipulates that at least 84,850m^2 of employment floorspace of different use classes will be delivered across the district; and
- Policy SS6 (Strategic Employment Allocations) – identifies the Strategic Employment Allocations, and therefore employment opportunities, that will be delivered over the WLP period.

Recreational Pressure

Ashdown Forest SPA / SAC

5.8 The qualifying ground-nesting birds in the Ashdown Forest SPA (nightjar and Dartford warbler) are sensitive to disturbance, particularly from visitors that walk their dogs off-lead. These species

nest on or close to the ground and disturbance can lead to reduced time spent incubating eggs, provisioning for chicks, increased energy expenditure and, in the case of prolonged disturbance, abandonment of eggs. Recreational trampling can also lead to the destruction of eggs, killing of chicks and damage to SAC vegetation upon which qualifying birds rely. Natural England's Site Improvement Plan identifies public access as potentially impacting breeding birds in the SPA and work that is ongoing to reduce visitor pressure, including baseline work to identify current impacts and identifying necessary mitigation interventions.

5.9 Previous visitor surveys undertaken within the Ashdown Forest SPA / SAC, entirely situated within Wealden District, have established the site as an attractive and compelling destination, attracting visitors from a large geographical catchment. Data from the surveys have been used to identify a core recreational catchment (i.e. the zone that 75% of visitors to the site derive from based on the linear distance to home postcodes) for the SPA / SAC of 7km, which includes a large portion of Wealden District including the nearest major settlements of Crowborough and Uckfield. Therefore, it can be reasonably expected that residential growth in the authority would result in increased visitor numbers and disturbance in the SPA / SAC. A review of Natural England's SSSI condition assessments further corroborates this. For example, the assessment for East Chase Unit 47 states that the area is heavily used by walkers (especially dog walkers), although there is little evidence to indicate that visitors venture far off-track.

5.10 The available evidence base highlights that recreational pressure is a continuing concern for the Ashdown Forest SPA / SAC, with visitor numbers expected to further increase due to emerging Local Plans. Therefore, LSEs of the Wealden Local Plan on the Ashdown Forest SPA / SAC regarding recreational pressure cannot be excluded and these sites are screened in for Appropriate Assessment.

Lewes Downs SAC

5.11 The site is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates, the grassland components of which are more sensitive to recreational trampling and nutrient enrichment from dog faeces. Trampling damage is of elevated concern where the sward comprises grasslands containing significant orchid assemblages or rare orchid species. The Lewes Downs SAC supports a range of rare and scarce orchids including early spider-orchid, burnt orchid (one of the largest colonies in the UK) and musk orchid. Natural England's Site Improvement Plan lists public access as a pressure on the SAC, although particularly in relation to large-scale, unconsented gatherings, which '*can create serious damage through trampling*', particularly when confined to small parts of the site. The increase in recreational pressure that is likely to arise due to the implementation of the Wealden Local Plan will primarily occur as small-scale, discrete recreational visits that are unlikely to result in excessive footfall in sub-sections of the SAC.

5.12 Site accessibility is a major factor in determining potential recreational impacts in nature conservation sites. For example, there is only one formal car park that serves the SAC in Glynde, indicating that the vast majority of visitors are likely to be local residents. The Lewes Downs SAC lies approx. 2.9km to the west of Wealden District, implying that visitors from the authority are likely to be restricted to car travel. Furthermore, a review of OS mapping on outdooractive highlights the steep terrain of the SAC is only permeated by few foot paths. It is considered that most visitors will be discouraged from walking off-track by the adjoining steep terrain, providing natural protection to the sensitive chalk grassland and orchid species. HRAs for Lewes Local Plan, South Downs National Park Local Plan and other authorities have not identified recreational pressure as a significant concern for this SAC. Overall, it is concluded that LSEs of the Wealden Local Plan on the Lewes Downs SAC regarding recreational pressure can be excluded and the site is screened out from Appropriate Assessment.

Castle Hill SAC

5.13 With regard to recreational trampling, the sensitivity and overall situation of the Castle Hill SAC is similar to the Lewes Downs SAC which was discussed in the previous section. The site is designated for grasslands and scrubland facies on calcareous substrates, which are distributed over steeply sloping hills. There is a limited number of footpaths that permeate the SAC and it is

considered that most visitors will stick to the route network without venturing off-path. At a distance of 9.9km from Wealden District (and only one formal car park situated to the west of the SAC in Woodingdean), the site also lies far beyond the core recreational catchment that is documented for most inland, terrestrial Habitats sites (typically approx. 5km). The Lewes Local Plan HRA, South Downs Local Plan HRA and Brighton & Hove Local Plan HRA all considered recreational pressure on the SAC but determined that it was of low susceptibility. Overall, it is concluded that there will be no LSEs of the Wealden Local Plan on the Castle Hill SAC regarding recreational pressure and the site is screened out from Appropriate Assessment regarding this impact pathway.

Policy Screening

5.14 A review of the emerging WLP indicates that LSEs in relation to recreational pressure cannot be excluded for several policies due to the allocation of residential growth and a concomitant increase in the local population. The following policies need to be taken forward to Appropriate Assessment:

- Policy SS2 (Provision of Homes) – identifies the delivery of 15,729 dwellings over the WLP period (of which 5,616 dwellings will be new allocations)
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period

Water Quantity, Level and Flow

Pevensey Levels SAC / Ramsar

5.15 The Wealden Local Plan will lead to an increased requirement for potable water consumption for households and industrial sites. If this requirement is met by an increase in consented abstraction volumes or the development of new water resources, this can result in changes to the integrity of hydrologically connected Habitats sites, such as through reduced water levels or flows. Runoff from impermeable urban surfaces can also lead to increased volumes of surface water input and flash floods in nearby nature conservation sites.

5.16 The Pevensey Levels SAC is designated for its population of ram's-horn snails and Natural England's Site Improvement Plan and Supplementary Advice on the Conservation Objectives highlights that maintaining adequate water levels (0.3cm below ditch neck) is critical to the survival and migration of this species. Furthermore, the overlapping Ramsar is designated for its assemblage of wetland plants and invertebrates, which all depend on appropriate water levels throughout at least parts of their life cycle. The SAC has been identified as having a relatively narrow hydrological catchment, with water levels primarily being determined by a few key rivers that traverse the plain.

5.17 The Pevensey Levels Ramsar is designated for its assemblage of wetland plants and invertebrates (especially Coleoptera and Odonata), which all require appropriate water levels.

5.18 Policy ScreeningGiven the baseline evidence, LSEs of the Wealden Local Plan on the Pevensey Levels SAC / Ramsar regarding water quantity, level and flow cannot be excluded, and **the site is screened in for Appropriate Assessment** in relation to this impact pathway. In particular, the following policies are screened in because they will increase demand for clean drinking water and proliferate urban surfaces within Wealden District:

- SS 2 – Provision of Homes
- Policy SS 3 – Gypsy, Traveller ad Travelling Showpeople – Accommodation needs
- Policy SS 4 – Retail Provision and Town Centres
- Policy SS 5 – Strategic Employment Allocations

Ashdown Forest SAC

5.19 The Ashdown Forest SAC is partly designated for its wet heaths with *Erica tetralix* (Annex I habitat). Wet heathland forms on a range of nutrient-poor substrates with impeded drainage, such as shallow peats and sandy soils. Depending on their location, wet heaths may be primarily fed by rainwater or groundwater. The latter is particularly important in valley basins where groundwater comes close to the surface and this is the type of wet heath that may be predominantly impacted by increases in water abstraction.

5.20 Natural England's Site Conservation Objectives Supplementary Advice specifies that wet heath depends on hydrological supporting processes and establishes that an appropriate hydrological regime is required for the site to achieve its Conservation Objectives. Changes in the source, depth, duration, frequency, magnitude and timing of freshwater supply can significantly alter botanical community composition. For example, an increased drying of wet heath may result in the long-term reduction of coverage by moisture-loving species, such as *Erica tetralix*. As part of their air quality and ecology monitoring / modelling work, Ecus mapped the distribution of different vegetation types and habitats across the SAC. The data indicates that wet heath is primarily distributed across the central, eastern and southern areas of the site, which would also be most sensitive to reduced hydrological input.

5.21 Overall, LSEs of the Wealden Local Plan on the Ashdown Forest SAC regarding water quantity, level and flow cannot be excluded and the site is screened in for Appropriate Assessment in relation to this impact pathway.

Water Quality

Pevensey Levels SAC / Ramsar

5.22 The Pevensey Levels SAC/Ramsar is designated for its notably large population of ramshorn snails, an invertebrate species that preferentially occurs in unpolluted water. Eutrophication and resulting low oxygen concentrations and excessive algal growth have been identified as a major threat to this species. The Pevensey Levels Ramsar encompasses a range of important wetland flora and fauna communities, all of which are sensitive to water pollution. The site supports outstanding invertebrate populations, including Mollusca, aquatic Coleoptera, over 15 species of dragonfly and the fen raft spider *Dolomides plantarius*. Point-source domestic sewage pollution is identified as one of two factors currently adversely affecting the Ramsar's ecological status.

5.23 Notably, the SAC / Ramsar lies immediately south-east to the conurbation of Hailsham, which is served by two Wastewater Treatment Works (WwTWs) – Hailsham North and Hailsham South. Both WwTWs discharge into waterbodies that are connected to the SAC / Ramsar and sit directly adjacent to the boundary of the site. This implies that there is little scope for natural dilution and attenuation processes to reduce the influx of nutrients to the SAC / Ramsar. Natural England's Site Improvement Plan specifies that the storm water tank of one of the WwTWs adjoins the SAC / Ramsar and discharges untreated sewerage into the site under peak flow conditions.

5.24 Most of the settlements in Wealden District (i.e. Crowborough, Uckfield and Heathfield) are served by WwTWs that discharge to catchments which are not hydrologically connected to the Pevensey Levels SAC / Ramsar. AECOM considers that the above growth areas will not require more detailed assessments regarding water quality impacts. It is noted that treatment upgrades at Hailsham North and Hailsham South WwTWs have been made and that The WTWs operate in accordance with Environmental Permits set by the Environment Agency so that water quality objectives are protected. Water is now being treated to the best standard (the technically achievable limit – TAL)[58], substantially reducing the phosphorus concentration in the treated sewerage that is released into the Pevensey Levels. (this will be covered further in the Appropriate Assessment). **Notwithstanding this, as a precautionary measure, for growth around Hailsham in particular (served by the two Hailsham WwTWs), LSEs on the**

[58] TAL is the lowest level to which nutrients/pollutants can be removed to using current technology, and as technology changes and lower levels become achievable, the TAL will reduce further.

Pevensey Levels SAC / Ramsar regarding water quality through treated sewage effluent cannot be excluded. Therefore, the site is screened in for Appropriate Assessment.

5.25 Furthermore, a proliferation of impermeable surfaces through the allocation of development has the potential to increase polluted surface run-off across Wealden District. If such allocations are situated within the hydrological catchment of the Pevensey Levels SAC / Ramsar, there is the potential for water quality impacts to aquatic or water-dependent ecological interest features within this Habitats site. The WLP allocates several housing and employment sites in close proximity, which require further assessment regarding their hydrological connectivity to the Peveney Levels SAC / Ramsar. **Overall, LSEs of the WLP on the Pevensey Levels SAC / Ramsar regarding water quality through surface run-off cannot be excluded. Therefore, the site is screened in for Appropriate Assessment.**

Ashdown Forest SAC

5.26 The wet heaths with *Erica tetralix* Annex I qualifying feature of the Ashdown Forest SAC is likely to be at least partly sensitive to negative changes in water quality. While wet heaths do not solely depend on hydrological inputs, these habitats form on acidic, nutrient-poor substrates. The eutrophication of hydrologically connected surface water and groundwater (such as through treated sewage effluent), may result in higher phosphorus and nitrogen concentrations in wet heathland, which in turn may change botanical community composition.

5.27 According to a high-level review, the closest WwTWs to the Ashdown Forest SAC are Uckfield and Crowborough WwTWs. The Crowborough WwTW discharges to the Uck Upstream of Buxted Water Body in the Adur and Ouse Management Catchment. This river flows southward from Crowborough and does not have hydrological connectivity with the SAC. The Uckfield WwTW, located to the south of Uckfield, discharges to Ridgewood Stream, a watercourse in the River Ouse catchment that is connected to the R. Uck. Given that the discharge locations of WwTWs serving Wealden District, particularly those that lie closest to the SAC, have no hydrological connectivity with the Ashdown Forest SAC, LSEs of the Wealden Local Plan on the site can be excluded. The site is screened out from Appropriate Assessment regarding this impact pathway.

5.28 A review of the emerging WLP indicates that LSEs in relation to atmospheric pollution cannot be excluded for several policies due to the allocation of residential / employment growth and the concomitant increase in commuter traffic. The following policies need to be taken forward to Appropriate Assessment:

- Policy SS2 (Provision of Homes) – identifies the delivery of 15,729 dwellings over the WLP period (of which 5,616 dwellings will be new allocations);
- Policy SS3 (Gypsy, Traveller and Travelling Showpeople – Accommodation Needs) – identifies 51 pitches for gypsies and travellers and 3 plots for travelling showpeople to be delivered over the WLP period;
- Policy SS4 (Retail Provision and Town Centres) – sets out the retail hierarchy and where specific town centre uses will be located, thereby dictating a spatial element of growth;
- Policy SS5 (Provision of Employment Floorspace) – stipulates that at least 84,850m^2 of employment floorspace of different use classes will be delivered across the district; and
- Policy SS6 (Strategic Employment Allocations) – identifies the Strategic Employment Allocations, and therefore employment opportunities, that will be delivered over the WLP period.

6. Appropriate Assessment

Atmospheric Pollution (Nitrogen Deposition)

Ashdown Forest SAC

6.1 It has long been established that nitrogen is an essential element for all living organisms and is the main growth-limiting nutrient in terrestrial plants. Consequently, it is known that plants are highly sensitive to changes in concentration of available nitrogen. Gaseous nitrogen is highly unreactive, so plants principally depend on oxidised and reduced nitrogen (e.g. NOx and NH_3). These forms of nitrogen are primarily linked to anthropogenic activities, with vehicle emissions being a major source of nitrogen oxides and, to a lesser extent, ammonia. The primary impact of increased dry / wet nitrogen deposition is a fertilisation effect, favouring plant species that are better adapted to assimilate bioavailable nitrogen. The resulting effect on botanical communities is often one of declining species richness and increasing abundance of more competitive species.

6.2 Effects of nitrogen on heathland plants may be direct or indirect, while interacting with a host of abiotic and biotic factors, such as species-specific sensitivities. The low-growing and non-vascular species in heathland communities are particularly vulnerable to nitrogen deposition due to their limited ability to assimilate nitrogen. The primary fertilising effect of increased nitrogen deposition increases overall plant biomass, which typically shows as an increase in growth of heather. The growth of lower-growing species like mosses and lichens is impeded by increased shading and the disappearance of bare ground. In turn, heather, through toxic effects of deposition and damage to tissues, becomes more sensitive to diseases and environmental stressors. More competitive species (e.g. bracken and purple moor-grass) are then able to encroach on former heathland habitat.

6.3 The Ashdown Forest SAC is designated for wet heaths with *Erica tetralix* and European dry heaths, both of which have a nitrogen Critical Load of 5-15 kg N/ha/yr according to the Air Pollution Information System (APIS). Both habitat types are also sensitive to ammonia deposition due to the presence of lichens and bryophytes, for which APIS establishes an annual mean nitrogen Critical Level of 1 µg NH_3/m^3. In many areas in the UK, nitrogen CL are already exceeded and many habitats are significantly impacted by nitrogen deposition. APIS highlights that the current typical background deposition to the SAC is c. 14 kg N/ha/yr, exceeding the minimum CL of 10 kg N/ha/yr that is identified for both dry and wet heaths. The typical background ammonia concentrations in both heathland types (c.2 $\mu g/m^3$) are above the 1 $\mu g/m^3$ Critical Level established for lichens and bryophytes.

Road Infrastructure and Commuting Patterns Surrounding the SAC

6.4 The Ashdown Forest SAC, situated in the north-west of Wealden District, is permeated by the A22 and A26, two major commuter roads that connect Wealden District with the adjoining authorities of Mid Sussex and Tunbridge Wells. In terms of Annual Average Daily Traffic (AADT), neither road is particularly busy compared to other A roads and both have similar volumes of traffic. For example, for the A26 the Department for Transport's road traffic statistics provide an AADT of 6,419 cars, 1,367 light goods vehicles and 394 heavy goods vehicles at manual count point 78157 just south-east of the Ashdown Forest SAC. Similar traffic volumes have been recorded at traffic monitoring points on the A22. Census 2021 journey-to-work data highlights that the authority of Eastbourne is the origin and destination that accounts for the highest volume of commuter traffic to / from Wealden District. However, both Mid Sussex and Tunbridge Wells, the authorities that would most likely involve vehicle journeys through the Ashdown Forest SAC, are in the top 5 origins and destinations for commuter traffic associated with Wealden District. For example, Tunbridge Wells accounts for approx. 10.7% and 15.3% of all incoming and outgoing commuter journeys linked with Wealden District. Mid Sussex, while less important in terms of overall commuter volume, still contributes significantly to the overall traffic footprint connected to Wealden District. Therefore, it is reasonable to conclude that residential and

employment development allocated in the Wealden Local Plan would lead to an increase in overall traffic volume on the A22 and A26.

6.5 A relatively small section of the Ashdown Forest SAC is traversed by the A275 to the south of Wych Cross. This road provides a potential commuter connection to the authorities of Mid Sussex to the west and Lewes to the south. Lewes accounts for approx. 12.6% of the inflow and 11.9% of the outflow of commuter traffic linked to Wealden District. Therefore, this route also requires further consideration with regard to atmospheric pollution.

Traffic and Air Quality Modelling for the Wealden Local Plan

6.6 The air quality modelling for the Wealden Local Plan involved four model scenarios as follows:

- Baseline Scenario: This is the current pollution levels within 200m of the modelled road network (not confined to the A26, A22 and A275) based upon traffic counts
- Future Baseline Scenario: This is a hypothetical scenario that freezes traffic growth but accounts for improvements to vehicle emission factors to 2040 – this scenario would never arise in practice but is useful to acknowledge the improving pollutant background concentrations and quantify any retardation effects in air quality improvements that may be caused by development plans
- Do Nothing Scenario: Models air quality parameters based on residential / employment growth in authorities adjoining Wealden District (e.g. in Mid Sussex, Lewes, Tandridge, Sevenoaks, Tunbridge Wells, Rother and Eastbourne), but **excluding** growth allocated in the Wealden Local Plan
- Do Something Scenario: Models air quality parameters based on the projected growth in adjoining authorities **including** development allocated in the Wealden Local Plan (the in-combination scope) – the difference to the 'Do Nothing' scenario allows for quantifying the air quality impacts of the Wealden Local Plan, while also allowing for in-combination assessment

6.7 The three future growth scenarios modelled for Air Quality Impact Assessment (AQIA) use different model parameters. The Future Baseline scenario effectively uses present-day AADT, but 2040 emissions factors, vehicle fleet composition, and background concentrations (the latest projected year available from Defra) including a precautionary allowance for conversion of combustion engines to electric vehicles during the 2030's. The 'Do Nothing' and 'Do Something' scenarios utilise 2038 projected AADT, 2040 emission factors, vehicle fleet composition and background concentrations, without and with the Wealden Local Plan respectively.

Air Quality Modelling Results

6.8 Air quality modelling was undertaken at 20 transects throughout the Ashdown Forest SAC (see Figure 5 in Appendix B), including eight transects along the B2026 (WDC1 – WDC8), two transects along New Road (WDC9 and WDC10), two transects along Crowborough Road (WDC11 and WDC12), four transects along the A22 (WDC13, WDC14, WDC17, WDC18), two transects along the A275 (WDC15 and WDC16), one transect along the A26 (WDC19) and one transect off the B2188 (WDC20). Modelled atmospheric pollutants were NH_3, NOx, overall N deposition and acid deposition. Acid deposition results are not discussed in this section as the modelling shows the 'in combination' dose is effectively imperceptible beyond 20m from the roadside on even the most affected transects.

Changes in air quality have been modelled up to a distance of 200m from the roadside because the contribution of traffic to local atmospheric pollution levels becomes imperceptible beyond this distance and any negative effect on the vegetation from traffic growth will therefore be greatest closest to the roadside (and certainly within 200m). The data are reported at 10m intervals perpendicular to the road; this is known as a transect. Modelling transects were chosen based on the facts that a) traffic data (and therefore modelled traffic emissions) will not change between road junctions, so a given stretch of road between junctions only requires one transect (sometimes one each side of the road to take account of the prevailing wind) and b) woodland is not a qualifying feature of the SAC. Generally, transects have been located where heathland is present within 200m of the road. Air quality modelling results are summarised in

6.9 Table 9 in Appendix B.

6.10 The modelling is deliberately precautionary. In particular, the housing and employment growth in this modelling exercise is approximately 25% greater than that actually proposed in the Regulation 18 Local Plan, as the modelling was based on the highest potential growth scenario being considered by the Council at the time the modelling was undertaken. In addition, the CREAM tool is used to model ammonia, which more recent evidence suggests may overestimate ammonia emissions for future years.

Ammonia (NH_3) Concentrations

6.11 Under all scenarios NH_3 concentrations are generally below the most stringent Critical Level of 1 µg/m^3 except at the immediate roadside, indicating that no damage to sensitive lichens and bryophytes will occur. The Critical Level of 1 µg/m^3 is exceeded at the following transects:

- WDC13 and WDC14 (A22 north of Millbrook) – The Critical Level is exceeded close to the road but falls below the Critical Level after 10m from the roadside. Within c. 20-30m of the A22 the habitat is road verge, grassland, plantation, scrub and dense gorse and bracken with no notable lower plant interest. The upper critical level, relevant to the protection of vegetation generally (3 µg/m^3), is not exceeded.

- WDC17 and WDC18 (A22 between Roebuck and Forrest Row) – The first 100m of these transects are largely woodland, with a higher Critical Level of 3 µg/m^3. This Critical Level is not exceeded. Moreover, woodland, although a component part of the SSSI designation, is not a qualifying feature of the Ashdown Forest SAC and is not integral to the favourable conservation of any SAC or SPA interest features.

- WDC19 (A26) – The lowest Critical Level of 1 µg/m^3 is exceeded close to the roadside but falls to below the Critical Level by 20m from the road. The nearest significant area of heathland habitat lies approx. 40m from the roadside and, therefore, will not be impacted by elevated NH_3 concentrations.

6.12 It is therefore concluded that elevated ammonia will not have an adverse effect on the integrity of Ashdown Forest SAC because it is not forecast to exceed the upper critical level except at the immediate roadside of transect WDC17 and is not forecast to exceed the lower critical level for protection of lichens and bryophytes at any locations where a diverse lower plant flora is found or would be expected.

Nitrogen Oxides (NOx) Concentrations

6.13 In the 2019 baseline scenario NOx exceeds the critical level (30 µg/m^3 set for the protection of vegetation) at the roadside of most modelled transects. However, in all future 2040 scenarios the NOx concentrations are not forecast to exceed the critical level on any transect.

6.14 Moreover, APIS[59] identifies that negative effects of NOx/NO_2 in atmosphere (as distinct from its role in nitrogen deposition) are most likely to arise in the presence of equivalent concentrations of sulphur dioxide (SO_2). Vehicle exhausts do not emit SO_2 and APIS indicates that background SO_2 concentrations at this SAC are very low (below 1 µgm^{-3}) compared to critical levels for SO_2 of 10-20 µgm^{-3}. Since the SO_2 concentrations are so low no synergistic effect with NOx is expected.

Total Nitrogen (N) Deposition

6.15 Generally, the majority of nitrogen due to traffic growth will be deposited within 0m and 10m from roads, within adjoining mown grass road verges and belts of dense gorse, bracken and trees. These areas have low sensitivity to nitrogen and contain lower value habitats due to historic impacts from the roads, including from salt spray, litter, dust, surface runoff, altered drainage and soil composition. These vegetation belts also protect SPA birds from road impacts, including from noise, and reduce the risk of livestock straying onto the carriageways. Even at roadside locations, nitrogen deposition from traffic growth would not prevent heathland restoration (if attempted),

[59] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm

particularly in the context of forecast net reductions in total nitrogen deposition due to improvements in vehicle emission technologies.

6.16 Nitrogen deposition exceeds the critical load along all transects even without traffic growth. This is unsurprising and is the case throughout much of England. In such instances Natural England guidance is relevant:

- Paragraph 5.26 of Natural England guidance on the issue[60] states that '*An exceedance* [of the critical level or load] *alone is insufficient to determine the acceptability (or otherwise) of a project'.* So, the fact that the critical load for nitrogen are already exceeded is not a legitimate basis to conclude that any further nitrogen (no matter how small) will result in an adverse effect. Where an exceedance of the Critical Load is expected, it is also necessary to consider whether the forecast dose will be imperceptible and, if not, what the ecological implications are likely to be;

- Paragraph 4.25 of the same NE guidance states '*…1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible…There can therefore be a high degree of confidence in its application to screen for risks of an effect*'.

6.17 While data are modelled for the immediate roadside, IAQM guidance is that immediate roadside data are not used in the assessment due to the reduced model accuracy when in close proximity to the road. Using the 10m point as the worst-case therefore the nitrogen data can be summarised as follows. Since transects WDC17 and WDC18 represent woodland rather than heathland, they are not discussed below:

- For eight transects (WDC1, WDC2, WDC6, WDC7, WDC8, WDC11, WDC12, and WDC16) the in-combination nitrogen dose is 0.3 kg N/ha/yr at 10m from the roadside (often lower), falling to imperceptible (below 1% or 0.05 kgN/ha/yr) by 20-40m from the roadside, depending on transect. The contribution of the WLP to this dose (DS – DM scenarios) is imperceptible at most of these transects (i.e. 0.05 kg N/ha/yr or below by 10-20m from the roadside). Guidance from National Highways as set out in the Design Manual for Roads and Bridges (DMRB) Volume LA105 (Air Quality)[61] indicates that, based on analysis of nitrogen dose-response relationships, a nitrogen dose below 0.4 kgN/ha/yr is not expected to have a significant botanical effect even if it did constitute a net deterioration.

- For six transects (WDC3, WDC4, WDC5, WDC9, WDC10, and WDC15) in-combination nitrogen deposition doses are higher but deposition rates have still generally fallen to or below 0.3 kg N/ha/yr by 10-20m from the roadside, which is where heathland habitat commences. The contribution of the WLP to this dose (DS – DM scenarios) is imperceptible at most of these transects (i.e. 0.1 kg N/ha/yr or below, equating to less than 1% of the CL) by c. 10m from the roadside. Therefore, as with the eight transects mentioned in the previous bullet, the deposition forecast at the nearest area of heathland does not exceed that identified as being insignificant in the DMRB.

- Unsurprisingly, the highest in-combination nitrogen doses are forecast for transects WDC13 and WDC14 (A22 north of Millbrook), and WDC19 (A26). At all three transects the highest nitrogen deposition will occur within 30m of the roads. For example, for transect WDC13, the in-combination dose is 1.29 kg N/ha/yr at 10m from the road, 0.77 kg N/ha/yr at 20m and 0.55 kgN/h/yr at 30m from the road. Similar magnitudes and patterns of nitrogen deposition apply to transects WDC14 and WDC19. There is no heathland within 20-30m, the area of greatest deposition effects, along the A22 and A26. Generally, there is a 20-30m separation between the A22 and heathland habitats (WDC13 and WDC14). Similarly a 40m+ woodland strip separates the A26 from heathland, by which time nitrogen deposition has fallen to 0.37 kgN/ha/yr. Unlike the

[60] 'Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. Version: June 2018'. http://publications.naturalengland.org.uk/publication/4720542048845824
[61] LA 105 - Air quality (standardsforhighways.co.uk)

other transects, the Wealden Local Plan is responsible for the majority of increased nitrogen deposition on these three transects.

6.18 In summary, 'in combination' nitrogen deposition is forecast to be a maximum of c. 0.3kgN/ha/yr or below at the nearest area of heathland on most transects, rising to c. 0.37-0.77 kgN/ha/yr on transects WDC13, WDC14 and WDC19. This in combination dose declines exponentially with distance from the road.

6.19 Natural England guidance makes it clear that exceedance of the '1% of the critical level/load' threshold does not automatically mean an adverse effect on integrity will arise. Paragraph 5.28 of that guidance states '*In practice, where a site is already exceeding a relevant benchmark, the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner'*.

6.20 Research by Caporn et al. (2016)[62] indicates that it requires a 1.3 kg N/ha/yr increase in nitrogen deposition to result in the net loss of 1 species at the baseline deposition rates forecast at Ashdown Forest SAC in 2040 (c. 15 kgN/ha/yr). This threshold is only reached at the roadside of the A22 and A26 and there is no heathland within these areas of greatest nitrogen deposition. Appendix 5 of Caporn et al (2016)[63] suggests that at the forecast background nitrogen deposition rates at the SAC the worst-case additional nitrogen deposition to heathland as a result of 'in combination' traffic growth (c. 0.77 kg N/ha/yr at 20m from WDC14) could, if it constituted a net increase in deposition rate, result in a small (c.0.3%) increase in grass (graminoid) cover and a reduction in species richness (whether grasses, mosses or total species richness) at the roadside equivalent to c.1.5% of the maximum (c.0.6 species i.e. if you dropped a random quadrat there is an approximately 20% probability you would record one less species). The impact over the vast majority of the heathland in the SAC would be much lower than this.

6.21 Notably, because nitrogen deposition rates are predicted to significantly drop between 2019 and the Future Baseline (assuming no traffic growth but accounting for improvements in vehicle emissions), any impacts of the 'in combination' total nitrogen dose would occur as a slowing in the rate of nitrogen improvement (and thus potential speed of vegetation recovery) rather than a deterioration. For the worst-case in combination nitrogen deposition dose to heathland (0.77 at 20m from WDC14), the modelled scale of growth would slow the rate of reduction in nitrogen deposition that was otherwise forecast to occur by 5 years[64]. However, since 74% of that nitrogen is attributable to Wealden Local Plan, and the modelling overestimates growth in the Local Plan by 25% (since it was based on an earlier higher traffic growth scenario), the actual delay in this area would be 3-4 years[65], which is not signfiicant. Moreover, this scale of delay would only apply to approximately 4ha of heathland in the SAC, or 0.16% of the 2,261.42ha of heathland in the SAC.

6.22 Natural England have confirmed in discussions over the Wealden, Mid-Sussex, Tunbridge Wells and South Downs National Park Local Plans that nitrogen deposition from traffic is not preventing the SAC from achieving its Conservation Objectives, but that the principal issue is a lack of management, which is ultimately a land stewardship issue for site owners and managers rather than a consequence of the implementation of Local Plans. For example, a review of the Natural England SSSI condition assessment covering the SAC clearly indicates that historic (and in many cases current) inadequate management is the reason why only 20% of Ashdown Forest SAC is currently in a favourable condition.

[62] Caporn S., Field C., Payne R., Dise N., Britton A., Emmett B., Jones L., Phoenix G., Power S., Sheppard L. & Stevens C. (2016). Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.
[63] Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.
[64] A net improvement in nitrogen deposition without traffic growth of 3,27 kgN/ha/yr over 21 years would equate to an average annual improvement of 0.16 kgN/ha/yr. A nitrogen dose due to traffic growth of 0.77 kgN/ha/yr effectively equates to five years of improvement that would be delayed.
[65] The nitrogen dose adjusted for the additional growth in the model which is not in Wealden Regulation 18 Local Plan would be 0.62 kgN/ha/yr, which equates to 3.8 years.

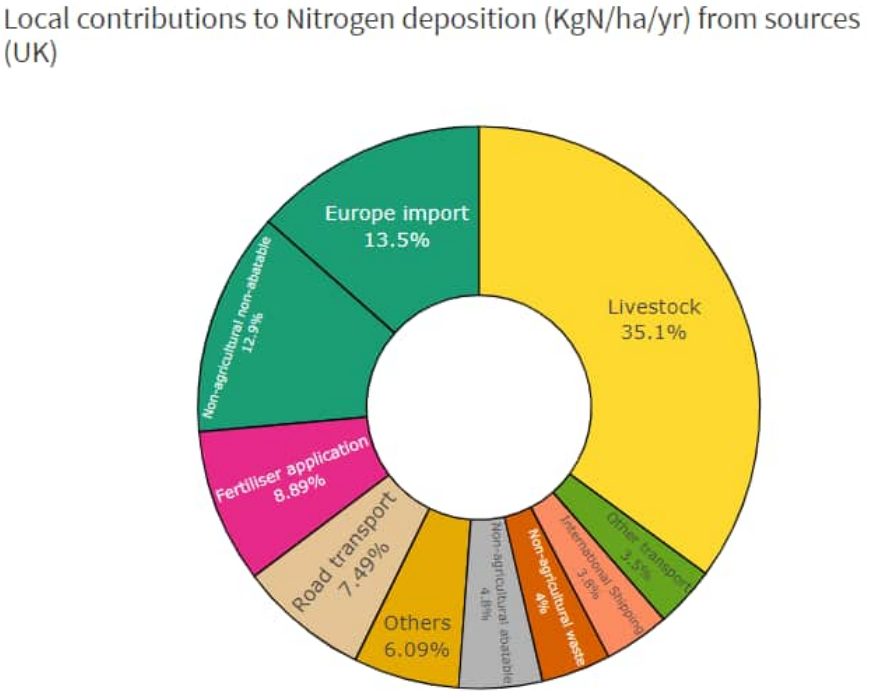
6.23 The fact that traffic emissions are not a primary concern regarding the ability of Ashdown Forest to achieve its conservation objectives is reflected in the Supplementary Advice on the Conservation Objectives (SACO). The SACO for both the SAC and the SPA contain a target to '*Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System'*. However, they also state that '*Increased development is likely to result in increased traffic on the roads that cross the SPA. However the resultant vehicular air emissions will not significantly retard the background improvements that are expected as a result of improvements in vehicular technology and from the Government Clean Air Strategy*' (SACO for the Ashdown Forest SPA) and '…*assessment of improvements in vehicular technology and in particular Euro6/VI standards that all vehicles are currently being manufactured to, will outweigh impacts from new development. The improvements will be marginally retarded by additional development but future nitrogen deposition and concentration will continue to decline with the existing trend. The site exceeds the critical load/level however Natural England Commissioned Report 210 identifies that expected increase in Nitrogen levels from additional transport would fall below the level that would reduce species richness on the site* [Table 21 of NECR210 identifies that a dose of 1.3 kgN/ha/yr would be required to reduce species richness at lowland heathland by 1 species] *even if the expected declining trend in Nitrogen failed to materialise. The background levels of Nitrogen are expected to decline with EU and Government clean air strategies and continue the existing downward trend'*.

6.24 That is not to say that there is no objective to address nitrogen deposition at the SAC. The Shared Nitrogen Action Plan (SNAP) is the primary mechanism by which Natural England aim to reduce nitrogen deposition to the SAC. It is targeted at agriculture rather than traffic because almost three times more nitrogen deposited to the SAC stems from agriculture (fertiliser and livestock) than traffic. Agricultural emissions also affect a much greater area of the SAC, whereas the effect of the roads is localised.

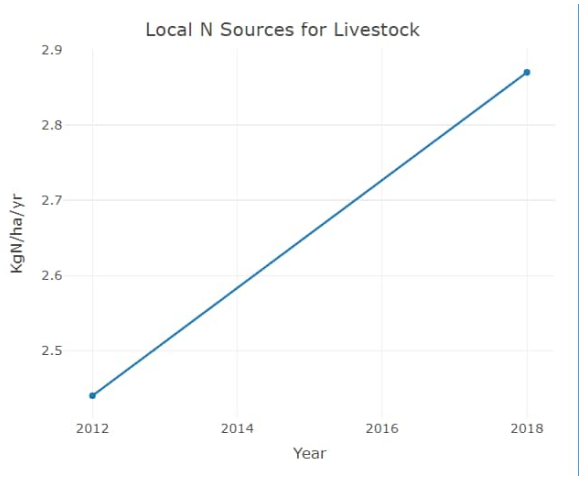
6.25 Regarding atmospheric pollution issues in the Ashdown Forest SAC, it is clear that agricultural sources (e.g. from livestock and fertiliser) continue to be the greatest concern. Source apportionment data on APIS indicate that 44% of all nitrogen deposited within the SAC is from agriculture (approx. four times greater than that from the next largest source). In contrast, road traffic is a relatively minor source of atmospheric pollution (7%). This indicates that the impacts of road traffic will be localised, while agricultural contributions will impact larger areas of the SAC, including open heathland away from roads. The difference in the importance of these sources is further illustrated by the fact that reducing agricultural emissions by 50% by 2040 would improve nitrogen deposition at 90m from the A22 by 3 kg N/ha/yr[66], whereas complete closure of the A22 would only reduce deposition at the same distance by 0.76 kg N/ha/yr. Moreover, while road transport is a continually improving (reducing) source of nitrogen, agriculture is a deteriorating (increasing) source.

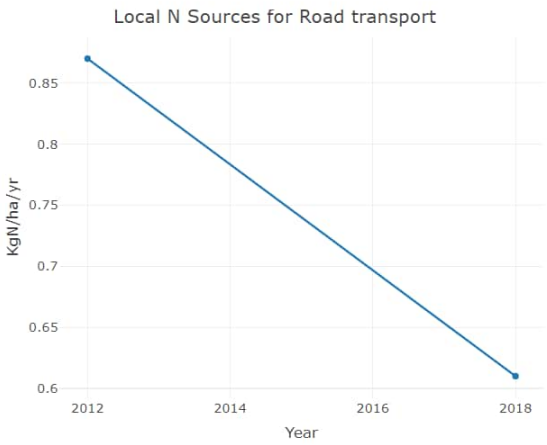
[66] According to APIS, 44% of nitrogen deposition to the SAC is from agriculture. Multiplying the background deposition at 90m from the road by 0.44 equates to 7.8 kg N/ha/yr annual nitrogen deposition from agriculture. This was then halved to show how much nitrogen deposition would be if agricultural emissions were curbed by 50%.

Source attribution of nitrogen deposition at Ashdown Forest, taken from the Air Pollution Information System. It can be seen that agriculture (livestock and fertiliser) are by far the greatest source of nitrogen at the SAC with traffic being a relatively minor source



Nitrogen trend data for Ashdown Forest. While nitrogen deposition from road traffic is reducing (improving) that from agriculture is increasing (deteriorating). Data are three-year averages, such that the results for 2018 are the average for 2017-19.





6.26 The forecast 'in combination' nitrogen doses due to traffic growth will have a negligible effect on Natural England's ability to restore good quality heathland through improved management and the implementation of the SNAP. For all these reasons it is considered that the ability of the SAC and SPA to achieve its Conservation Objectives would not be significantly compromised by the WLP growth either alone or in combination with other plans or projects.

Lewes Downs SAC

6.27 The Lewes Downs SAC is located in the adjoining authority of Lewes and is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates including an important

assemblage of rare and scarce orchids. On APIS semi-dry calcareous grassland is attributed a nitrogen CL of 10-20 kg N/ha/yr. Natural England's Site Improvement Plan specifies that the current nitrogen deposition exceeds the site-specific CL, indicating that air quality is an important consideration for the site.

Road Infrastructure and Commuting Patterns Surrounding the SAC

6.28 The SAC is situated to the east of the town of Lewes and is abutted by two major roads, the A26 and A27. Importantly, as discussed in the previous section, the A26 represents a strategic route into Wealden District, connecting to the authority to the south of Uckfield. DfT road traffic statistics report an AADT of 6,967 cars, 1,600 light goods vehicles and 284 heavy goods vehicles at manual count point 8386 a few hundred metres to the north of the SAC. According to Census 2011 data, Lewes is the second most important origin (approx. 12.6% of the total inflow) and third most important (approx. 11.9% of the total outflow) destination for commuters associated with Wealden District. The town of Lewes is the largest conurbation in Lewes District, indicating that it is also the most likely source and destination of commuters travelling to / from Wealden District. The A26 provides the most direct route to the town of Lewes and runs within 200m of the SAC just outside the conurbation near the intersection with the B2192. Therefore, it is concluded that the Wealden Local Plan has the potential to increase traffic flow along sensitive qualifying semi-dry calcareous grassland and a more detailed Air Quality Impact Assessment (AQIA) is needed.

Air Quality Modelling Results

6.29 Air quality modelling was undertaken at two transects in the Lewes Downs SAC (see Figure 5 in Appendix B), including one transect along the A26 at South Malling and one transect along the B2192. Modelled atmospheric pollutants included NH_3, NOx and overall N deposition. Acid deposition was also modelled, but it is recognised that calcareous sites are at low risk of acidification due to the high buffering capacity of the substrate. Acid deposition is therefore not discussed further for this SAC.

Changes in air quality have been modelled up to a distance of 200m from the roadside because the contribution of traffic to local atmospheric pollution levels becomes imperceptible beyond this distance and any negative effect on the vegetation from traffic growth will therefore be greatest closest to the roadside (and certainly within 200m). The data are reported at 10m intervals perpendicular to the road; this is known as a transect. Modelling transects were chosen based on the facts that a) traffic data (and therefore modelled traffic emissions) will not change between road junctions, so a given stretch of road between junctions only requires one transect (sometimes one each side of the road to take account of the prevailing wind) and b) woodland is not a qualifying feature the SAC. The transects are located where semi-natural dry grassland is present within 200m of the road. Air quality modelling results are summarised in

6.30 Table 9 in Appendix B.

6.31 The modelling is deliberately precautionary. In particular, the housing and employment growth in this modelling exercise is approximately 25% greater than that actually proposed in the Regulation 18 Local Plan, as the modelling was based on the highest potential growth scenario being considered by the Council at the time the modelling was undertaken. In addition, the CREAM tool is used to model ammonia, which more recent evidence suggests may overestimate ammonia emissions for future years.

Ammonia (NH_3) Concentrations

6.32 The results for the busiest and most affected road (the A26, transect LD1) are reported in this analysis as a worst-case. The nearest area of calcareous grassland to the A26 lies approximately 60m from the roadside behind a dense belt of trees. APIS assigns NH_3 Critical Levels to SACs generically rather than basing the decision on site-specific data. A Critical Level of 1 µg/m^3 is assigned to the Lewes Downs SAC on APIS because that threshold is automatically assigned to all sites supporting calcareous grassland because this habitat can support NH_3-sensitive lichens and bryophytes. However, even when present, these assemblages are rarely integral to the conservation status of the grasslands themselves. Past experience indicates that a diverse terricolous lichen flora typically only develops within the grassland sward if this has been damaged, exposing bare ground for lichen colonisation. In personal communication over the South Downs Local Plan HRA in 2018, Natural England confirmed that lichens and bryophytes are not a significant element of the international interest of the Lewes Downs SAC. Therefore, it is considered that the 1 µg/m^3 Critical Level is not applicable and a 3 µg/m^3 Critical Level is more appropriate. This higher Critical Level is not presently exceeded where the calcareous grassland is located and is not forecast to be exceeded in any scenario for 2040.

Nitrogen Oxides (NOx) Concentrations

6.33 The Critical Level for the general protection of vegetation is set at 30 µg/m^3. This is not currently exceeded at the closest area of calcareous grassland and is not forecast to be exceeded under any future scenario for 2040. Therefore, it is concluded that there will be no adverse effect on the SAC from NOx in atmosphere.

Total Nitrogen (N) Deposition

6.34 The current annual mean nitrogen deposition at transect LD1 exceeds the reduced minimum Critical Load of calcareous grassland of 10 kg N/ha/yr at the nearest area of calcareous grassland and throughout the transect. At 60m from the A26, total nitrogen deposition in 2040 is forecast to be 12.18 kgN/ha/yr. The in-combination nitrogen dose is forecast to be above 1% of the Critical Load, equating to 0.30 kg N/ha/yr by 60m from the road in 2040. The contribution of the WLP is modelled to be 0.16 kg N/ha/yr by 60m from the road.

6.35 The WLP is therefore forecast to be responsible for approximately 50% of the additional nitrogen deposition by 2040. Note, however, that this is not a net increase in nitrogen deposition. A net reduction in nitrogen deposition of 2.49 kgN/ha/yr is still forecast by 2040 notwithstanding traffic growth, compared to a net improvement of 2.79 kgN/ha/yr in the hypothetical situation of no traffic growth. In combination traffic growth will therefore slow the rate of improvement by approximately 3 years[67] compared to the position which would be achieved with no traffic growth. However, bearing in mind that the quantum of growth modelled is approximately 25% greater than that actually proposed in the Regulation 18 Local Plan, traffic growth is actually likely to slow the rate of improvement by 2-3 years at the closest area of calcareous grassland to the road.

6.36 The very limited effect of this slowing of improvement is recognised in Natural England's Supplementary Advice on the Conservation Objectives (SACO) for the SAC. With regard to nitrogen deposition it states that '*The improvements* [which would be expected in the absence of traffic growth] *will be marginally retarded by additional development but future nitrogen deposition and concentration will continue to decline with the existing trend. Additionally, modelling has*

[67] A net improvement in nitrogen deposition without traffic growth of 2.79 kgN/ha/yr over 19 years would equate to an average annual improvement of 0.13 kgN/ha/yr. A nitrogen dose due to traffic growth of 0.3 kgN/ha/yr effectively equates to three years of improvement that would be delayed.

identified that the habitat mostly affected by increases in N and NOx and NH_3 from vehicular impacts is woodland, which is not a designated feature of the SAC'.

6.37 Moreover, this slowing of improvement does not apply over the entire site. The 'in combination' nitrogen dose as modelled for 2040 drops to 1% of the critical load (mathematically imperceptible) by 130m into the SAC. Therefore, a total of 1.3ha (0.9% of the SAC) is therefore affected by this slowing of the rate of improvement, and much of this will be subject to a slowing of 1-2 years. The remaining 99.1% of the SAC would be unaffected.

6.38 In addition, guidance from National Highways as set out in the Design Manual for Roads and Bridges (DMRB) Volume LA105 (Air Quality)[68] indicates that, based on analysis of nitrogen dose-response relationships, a nitrogen dose below 0.4 kgN/ha/yr is not expected to have a significant botanical effect even if it did constitute a net deterioration.

6.39 Overall, it is concluded that the WLP will not result in adverse effects on the integrity of the Lewes Downs SAC regarding atmospheric pollution, either alone or in-combination with other plans or projects.

Recreational Pressure

Ashdown Forest SPA / SAC

Sensitivity of the SPA / SAC

6.40 Several studies have now shown negative impacts of housing growth on protected wildlife sites. These include evidence on the link of housing growth with nature conservation impacts, such as recreational pressure effects on ground-nesting nightjars and Dartford warblers. These species are particularly sensitive to disturbance because they nest on or close to the ground, which makes them more susceptible to trampling damage and displacement from the nest by heathland visitors. Dogs that are walked off-lead are a particular concern because they roam freely, potentially triggering major flight responses or predating on birds. Studies on nightjar breeding success have established greater failure rates for nests in proximity to footpaths.

6.41 While recreational pressure clearly has the potential to impact on individual birds / nests, population-level responses have also been observed. For example, the number of individual woodlark and nightjar in a site was negatively correlated with the amount of housing surrounding a site. In 2006, a Footprint Ecology modelling report demonstrated that the number of visitors to heathland sites was negatively correlated with nightjar density, implying that nightjars showed a statistically significant preference to habitat patches with low visitor pressure. Moreover, birds preferentially established territories away from habitat edges bordering patches with higher visitor numbers. For Dartford warblers it has been shown that disturbance events significantly reduce productivity (i.e. the number of successful broods raised) in heather-dominated territories, most likely due to the lower protection offered by heather species in comparison to gorse. The study estimated that an average of between 13 and 16 visitors passing per hour would prevent multiple broods.

6.42 However, data on the effects of recreational pressure on ground-nesting birds are not unequivocal. For example, a 2010 paper[69] found that areas with greatest footfall also supported the highest densities of Annex I species, implying that recreational access may not be impacting the SPA bird populations. Notwithstanding this, it was also shown that both humans and qualifying birds have similar habitat preferences (i.e. avoidance of woodland and wet heath), potentially overriding the impact that disturbance has on the birds. The study concluded that the current level of visitor pressure is not impacting the distribution of Annex I species, although this may change once a tipping point is reached. Furthermore, given that the abundance of these species is already low, recreational access may already be affecting the integrity of the qualifying bird populations, such as by reducing breeding success.

[68] LA 105 - Air quality (standardsforhighways.co.uk)
[69] Clarke RT, Sharp J & Liley D. (2010). Ashdown Forest visitor survey data analysis. Natural England Commissioned Reports, Number 48. Available at: http://publications.naturalengland.org.uk/publication/46010 [Accessed on the 12/10/2022]

6.43 It is noted that sensitivity to recreational pressure also applies to the Ashdown Forest SAC, primarily due to trampling and nutrient enrichment effects that damage SAC habitats (e.g. the wet and dry heaths) directly, as well as potentially rendering them unsuitable for supporting SPA birds. Trampling effects include direct damage to plants due to breakage and abrasion or indirect effects resulting from soil compaction and changes in soil hydrology. Trampling has been shown to lead to a more rapid appearance of bare ground in heathland than in grassland. Moreover, one study showed that when compared to grassland, heathland dominated by *Calluna* species showed a delayed response in terms of species recovery under high trampling intensities in winter. When comparing the sensitivity of dry and wet heaths, Gallet and Roze showed that wet heaths generally demonstrate lower resilience to trampling damage, most likely due to the impacts of soil compaction on water circulation. Other than trampling effects, the most important impact of recreational pressure in heathland habitats is dog fouling. For example, there was a significant linear correlation between defecation and soil phosphorus levels in recreation grounds, and high soil phosphorus concentrations remained three years after a ban on dogs. A study in Surrey established that the distribution of dog fouling coincided with a shift away from heather to wavy hair grass, likening the impact of dog fouling to the application of a fertiliser.

6.44 However, it is the effects on SPA birds that have driven the need for a mitigation solution, as disturbance of SPA birds has a lower threshold than SAC trampling for having an effect on the site integrity.

Background to Evidence Base

6.45 To develop a targeted and effective mitigation framework for a Habitats site, a comprehensive understanding of visitor numbers and access patterns is essential. With three prior visitor surveys that have been undertaken, a relatively comprehensive evidence base is available for the Ashdown Forest SPA. While there are significant differences in survey design between these studies (e.g. time of year, survey points and questionnaire), they nonetheless provide some consistent data trends and a useful resource comparing visitor levels over time.

6.46 In 2010 an analysis of existing visitor data for the Ashdown Forest SPA was undertaken[70], feeding into HRAs of development plan documents at the time. These essentially identified a strategy broadly analogous to that devised for the Thames Basin Heaths; namely the identification of a series of zones around the SPA each of which triggered a combination of provision of alternative greenspace and improved access management. At that time, a 7km 'outer zone' for Ashdown Forest SPA was agreed with Natural England[71]. Affected authorities that provided development within this affected 7km 'zone' were required to provide a financial contribution towards the provision of Suitable Alternative Natural Greenspaces (SANGs) and Strategic Access Monitoring and Management (SAMM) in the Ashdown Forest SPA / SAC. This general approach was supported by Natural England and the Ashdown Forest Conservators.

6.47 In 2016 Footprint Ecology undertook a further visitor survey[72] on behalf of six local authorities (Wealden, Mid Sussex, Lewes, Tunbridge Wells, Tandridge and Sevenoaks), to provide comprehensive and current data on recreational use of the Ashdown Forest SPA / SAC. Additionally, results from the survey were to inform the strategic implementation of access management, tailor a long-term management strategy and inform the design and management of SANGs. Ensuring that SANGs are adequately sited and designed is essential for the delivery of effective mitigation and drawing visitors away from the SPA. The 2016 survey also undertook a review of the site's core catchment zone, but the 7km zone was still recognised as capturing the appropriate geographic extent of growth contributing significantly to visitor numbers in the site.

6.48 The same six local authorities commissioned a repeat visitor survey, which was undertaken in summer 2021. This replicated the methodology and 18 of the 20 survey points of the 2016 survey, allowing for comparisons of access patterns, activities undertaken and core recreational

[70] Clarke RT, Sharp J & Liley D. 2010. Ashdown Forest Visitor Survey Data Analysis (Natural England Commissioned Reports, Number 048)
UE Associates and University of Brighton. 2009. Visitor Access Patterns on the Ashdown Forest: Recreational Use and Nature Conservation
[71] UE Associates. October 2011. Habitat Regulations Assessment for the Mid-Sussex District Plan
[72] Liley, D., Panter, C. & Blake, D. (2016). Ashdown Forest Visitor Survey 2016. Footprint Ecology Unpublished report.

catchments. Furthermore, it provided a framework in which to assess the efficacy of the current mitigation framework, including some of the SAMM measures and SANG approaches currently in place.

Overview of the 2016 Visitor Survey Results

6.49 Overall, the visitor survey demonstrated that Ashdown Forest SPA / SAC receives roughly 378 hourly visits (based on a 12-hour day) and 4,541 daily visits, equating to over 1.5 million visits annually across all access points. It is one of the largest open public greenspaces in south England and clearly provides a major draw for people undertaking recreational outings. A total of 452 visitors were interviewed, with most being on a trip from home from within a 9.6km radius. Most interviewees visit the SPA / SAC regularly, as is highlighted by 63% of respondents travelling to the site at least weekly. Importantly, approx. half (46%) of people stated that they would not have visited elsewhere if they could not have visited the Ashdown Forest SPA / SAC, highlighting the attractiveness of the site to local residents. The data also indicate that the likelihood and frequency for visiting the site decreases with distance from home, a pattern that is typical for most Habitats sites. Therefore, a residential development that is delivered close to the SPA / SAC may generate considerably more visits than a similarly sized development that lies further away.

Survey Results as Relevant to Wealden District

6.50 When considering the magnitude of impact of the Wealden Local Plan, interviewees that visit from the district and those that do so regularly (i.e. daily, weekly or monthly) are clearly most important, because they are associated with the largest recreational footprint stemming from the authority. Therefore, the following section largely focuses on repeat visitors from Wealden District.

6.51 Overall, of the 452 visitors interviewed, by far the largest number of interviewees (312) had travelled from Wealden District, accounting for 72% of the visitors captured by the survey. This is unsurprising because the Ashdown Forest SPA / SAC lies entirely within Wealden District and is surrounded by three main settlements, including Forest Row, Crowborough and Uckfield. Being the largest continuous and most attractive greenspace in the district, it is expected that the SPA / SAC would attract most of its visitors from local conurbations. Furthermore, the report also indicates that people from Wealden District also visit the site most frequently compared to visitors from other authorities, when considering interviewee responses of ‘daily’, ‘most days’ and ‘2 to 3 times per week’. In contrast, many interviewees from Mid Sussex, Tunbridge Wells, Lewes, Tandridge and Sevenoaks, visit the SPA / SAC more irregularly, such ‘2 to 3 times a month’, ‘once a month’ and ‘less than once a month’. Given that distance to home is one of the most important predictors of site choice, this is an expected pattern.

6.52 The importance of Wealden District’s contribution to the overall recreational footprint in the Ashdown Forest SPA / SAC is also shown by the settlements that most interviewees derive from. Visitors from Crowborough (139 interviewees, 46.9%) and Forest Row (50 interviewees, 16.9%), both conurbations in Wealden District, accounted by far for the largest proportion of visitors to the site, when excluding those on holiday and staying with friends / family. These settlements also contributed the highest proportion of dog walkers (78% respectively), the user group with the most significant impacts on the qualifying features of the SPA / SAC. The Crowborough and Forest Row (near golf club) survey points are pedestrian access points with no parking spaces available and had very high proportions of visitors travelling to the site on foot, further highlighting the significance of Wealden District’s nearby settlements.

6.53 Footprint Ecology’s 2016 survey also assessed the Euclidean straight-line distances between home postcodes and survey points for different subsets of interview data. This is an important step for identifying the core recreational catchment of Habitats sites, which typically encompasses the distance of the nearest 75% of postcodes to the relevant survey points. The following core recreational catchments were established:

- For all interviewees on a day trip and travelling from home – 75% of visitors lived within approx. 9.6km
- For dog-walking interviewees only – 75% of visitors lived within approx. 7.5km

- For interviewees visiting at least weekly – 75% of visitors lived within approx. 6km (note that the core recreational catchment is much smaller for interviewees that visit daily, 3.6km, and on most days, 5.9km)

6.54 Overall, the 2016 visitor survey established that the 7km core recreational catchment zone still provided a sufficiently precautionary compromise on the different types of user groups discussed above and, importantly, captured the high-impact user groups (i.e. dog walkers and those who visit at least weekly) to the SPA / SAC.

2021 Survey Results as Relevant to Wealden District

6.55 Of the 505 interviewees providing full valid postcodes in the 2021 repeat visitor survey, 323 (64%) were visiting from Wealden District. Although being slightly lower than in 2016, this confirms Wealden District's importance in determining recreational footfall in the Ashdown Forest SPA / SAC. Interestingly, compared to 2016, fewer interviews were recorded at the survey points nearest to Wealden District's conurbations (i.e. Crowborough and Forest Row near golf club), although these were still among the busier points surveyed and had very high proportions of visitors travelling to the site on foot. It is to be noted that the 2021 repeat survey was carried out during the COVID pandemic, meaning this may have skewed visitor survey data. Notwithstanding this, the total number of interviews was actually larger compared to the 2016 survey and it provides important context in assessing long-term visitor trends in the SPA/SAC.

6.56 The 2021 survey also reassessed linear distances to home postcodes to provide updated core catchment zones. While the core catchment zones, based on the 75th percentile of postcode data, have been drawn up for slightly different subsets of data, they still provide useful comparison to the zones recorded in 2016. The 2021 recreational catchments are as follows:

- For all interviewees on a day trip and travelling from home – 75% of visitors lived within approx. 11.4km (note this presents an increase from 2016)
- For dog-walking interviewees only – 75% of visitors lived within approx. 8.8km (note this presents an increase from 2016, but data for people on holiday or staying with friends and family appear not to have been excluded)
- For interviewees visiting at least weekly – 75% of visitors lived within approx. 10.7km (as in 2016, the catchments are significantly smaller for interviewees that visit daily or on most days; note this presents an increase from 2016, but data for people on holiday or staying with friends and family appear not to have been excluded)

Mitigation Requirements

6.57 Overall, it has been concluded that a mitigation strategy to reduce negative recreational impacts from new housing developments is required to deliver the Conservation Objectives of the Ashdown Forest SPA / SAC.

6.58 It is the main purpose of the Habitats Regulations Assessment (HRA) process to identify an adequate mitigation strategy that ensures no adverse effects on sensitive Habitats sites result from local development plans. Delivery of such a mitigation strategy involves the identification of measures themselves (i.e. an inventory of SANG and SAMM deliverables) and the geographic area to which these requirements apply. Wealden District Council published a detailed SPA Mitigation Zone Background Paper in 2019 in support of its withdrawn Local Plan[73]. This report was to further refine the area in which new residential development (in Wealden District and its adjoining authorities) may contribute to potential adverse effects on the integrity of the Ashdown Forest SPA (and SAC). In short, this paper considered distance to home postcodes from both the 2008 and 2016 visitor surveys and utilised cumulative frequency plots to determine the maximum distance to the SPA boundary which involved at least a 1% increase in visitor numbers (compared to the previous distance band). The background paper demonstrated that the in-combination visitor numbers (i.e. from Wealden and all adjoining authorities) tapered off beyond 7km for all user types and that this catchment captures 100% of people visiting the site daily or most days,

[73] Wealden District Council. (January 2019). Ashdown Forest SPA Mitigation Zone Background Paper – Submission Document. 160pp. Available at: https://www.wealden.gov.uk/UploadedFiles/I1.-Ashdown-Forest-SPA-Mitigation-Zone.pdf [Accessed on the 27/10/2021]

93.95% of people visiting 1-3 times per week and 90% of all dog walkers (i.e. the user groups with the highest anticipated impacts). In consultation with Natural England and partner authorities, it was determined that a 7km core catchment zone was an evidence-based and sufficiently precautionary approach to ensure effective mitigation delivery. While the 2021 repeat visitor survey evidenced an increase in the core recreational catchment of the SPA/SAC (as detailed above), Natural England still supports a 7km zone as suitable for avoiding adverse effects on site integrity. The principle of using SANG and SAMM as a complimentary mitigation tool is supported by the Conservators of Ashdown Forest, who are pivotal in delivering on-site SAMM measures.

Suitable Alternative Natural Greenspace (SANG)

6.59 The provision of SANG is considered to be the primary mitigation pillar to draw visitors away from the Ashdown Forest SPA / SAC. SANGs are greenspaces with defined properties[74] that are of sufficient quality and situated adequately to have a realistic potential to absorbing recreational pressure locally. One of the main benefits of SANGs is their unrestricted, safe and dog-friendly design, which can prove attractive to dog walkers particularly where they do not wish to keep their dogs under close control. The concept for SANGs stems from the Thames Basin Heaths SPA, where they have been a successful tool in attracting recreational users away from heathland sites. Wealden District Council (WDC) commenced its SANG programme following the adoption of the Core Strategy Local Plan in 2013. Currently, WDC owns two SANG sites. One in Uckfield and the other in Crowborough.,.

6.60 The SANG at Crowborough (Walshes Park) was acquired by the council in late 2015 and opened to the public in May 2017. It measures a total of 27.7ha and comprises all-weather paths that enable a circular walk of 3km, with seasonal path extensions enabling longer walks. The site has been improved in consultation with landscape and ecological professionals to maximise its appeal as a destination. Overall, Walshes Park is a popular recreational resource among local residents. Adopting an 8ha per 1,000 population standard (as advocated by Natural England in most parts of the country), the SANG at Crowborough has an approximate initial capacity of 3,462 people (or up to 1,505 new dwellings).

6.61 The SANG at Uckfield (Owlsbury Park) was primarily delivered to facilitate the development of 1,000 dwellings, identified as a broad location for growth in the adopted Core Strategy. It was opened for public use in May 2019 and measures 29ha in total. Works that were initially completed to make the site more attractive, included highway works along Horsted Pond Lane, improvements to the car park and approx. 2km of all-weather paths, which have now been completed. Other works have also been completed including the provision of earth bunds along the A22 with acoustic fencing and woodland planting, extending the 2km circular paths to enable walks of 3km and soft landscape works to provide a more appealing place for dog walkers. When considering the whole site, Owlsbury Park has an initial capacity of 3,625 people (or up to 1,576 new dwellings). Management Plans for the two SANGs will provide the detail for on-going management and improvement to ensure that these destinations remain attractive and provide continued effective mitigation.

6.62 Table 3 summarises the number of dwellings within the Ashdown Forest SPA/SAC mitigation zone by settlement and option. Details and distance by site can be found in Table 8.

Table 3: Number of residential dwellings to be delivered in the 7km recreational pressure mitigation zone surrounding the Ashdown Forest SPA / SAC.

Settlement	Number of Dwellings within 7km of Ashdown Forest SPA / SAC
Buxted	185
Crowborough	147

[74] SANGs must adhere to stringent guidelines published by Natural England. These have been last updated in 2008 and are available on the websites of various Local Planning Authorities, such as: https://www.woking2027.info/allocations/sadpdexam/neguidelinessang [Accessed on the 12/10/2022]

Framfield	145
Hartfield	11
Maresfield	235
Rotherfield	5
Uckfield	836
Withyham	36
	1,600

Table 4: Calculation of SANG requirements to support the Wealden Local Plan as per current Natural England guidance.

Total Number of Dwellings	Total Population Increase	SANG Standard	SANG Requirement to Support the Wealden Local Plan
1,600	3,840 (1,600* 2.4)	0.008ha per person (8ha per 1,000 population increase)	**30.72ha** (3,840 * 0.008)

6.63 Table 3 sets out on a Parish basis the residential sites that are allocated in the 7km mitigation zone surrounding the Ashdown Forest SPA / SAC. All dwellings in the 7km zone will require SANG mitigation, either through delivery of bespoke SANG (i.e. integrated in the site fabric) or contribution to a strategic SANG. Overall, it is reasonable to assume that the provision of additional housing will result in approx. 3,840 additional residents, requiring 30.72ha of SANG (Table 4).

6.64 As discussed earlier, WDC has established Walshes Park and Owlsbury Park, two SANGs serving the settlements of Uckfield and Crowborough. However, the capacity of these SANGs to mitigate further housing developments will be limited to support additional growth in the emerging Local Plan and new SANGs will be required unless additional capacity exists at Walshes Park and Owlsbury Park that can be delivered through site enhancements.

6.65 WDC has engaged with Natural England on the delivery of further SANGs in the district including attending a site visit to advise on the suitability of Land at Horstedpond Farm (Uckfield), to deliver a SANG which would extend Uckfield Millennium Green. It is considered that extending this existing greenspace has good SANG potential. The proposal would also involve enhancements to the Millennium Green, while also providing connectivity to existing developments north of the site. For the site to provide SANG mitigation, a range of measures would need to be delivered including:

- Improvements to trees and hedgerows separating the SANG from planned housing in terms of height, width and density, to deliver a semi-natural feel;
- Extra effort to enhance habitats on site, including the riverbank, to improve its attractiveness and ecological condition;
- Avoidance of sensitive wetland areas by visitors through targeted planning of the path network;
- Undertaking a visitor survey on the Millennium Green part of the site to establish current usage for purposes of capacity discounting;

- Integration of the southern linear part of the SANG and Millennium Green through signage and clear paths to enhance connectivity and ensure that visitors use the entire extent of the SANG;
- Implementation of additional management and enhancement measures to ensure that the SANG status is providing additional value to the Millennium Green in terms of its condition, attractiveness and ecological value;
- Nature-friendly SuDS in keeping with the natural character of the site; and
- Adequate screening of car parking to maintain a semi-natural feel within the SANG.

6.66 The actual usage and effectiveness of SANGs only becomes evident over time. Long-term visitor monitoring in SANGs is essential for ensuring effective mitigation delivery. For example, site usage may be much lower than expected and visitor interview data may help in improving the quality of sites as a local recreational resource. Conversely, if footfall within a SANG becomes too high (i.e. exceeding an acceptable visit rate benchmark of 1 person per hectare), the perceived feeling of overcrowding may result in local residents avoiding the site. Several research papers have shown that high usage levels can lead to voluntary spatial displacement[75], particularly in local residents[76]. Ineffective SANGs that exceed their carrying capacity may lead to a gradual increase in visitor numbers to protected sites, the very sites they are designed to protect.

6.67 Overall, AECOM considers that further information regarding the residual capacity of Wealden's existing SANGs is needed to establish the level of housing growth that could be accommodated in the existing framework. However, based on existing evidence, further SANGs (both due to capacity shortage and inadequate location) will need to be delivered to facilitate the larger residential developments and act as strategic mitigation for some of the smaller allocations. It is advised that Natural England continues to be involved throughout this process of developing a SANG inventory, to ensure that adequate sites are considered (particularly with regard to their location in relation to new housing and the Ashdown Forest SPA / SAC). WDC will issue a call for sites for SANGs to mitigate growth within the 7km zone to inform the Local Plan and HRA process and to support future development.

Strategic Access Management and Monitoring (SAMM) Mitigation

6.68 The Ashdown Forest SPA / SAC is an attractive recreational resource attracting visitors from a wide area. Its unique habitat characteristics imply that this Habitats site will continue to draw local residents even if adequate SANG is provided. Given that SANGs are unlikely to fully prevent additional future recreational visits, it has been determined that on-site Strategic Access Management and Monitoring (SAMM) interventions are also required.

6.69 Work on a SAMM strategy has been ongoing between the local authorities of Wealden, Mid Sussex, Lewes, Tunbridge Wells, Tandridge and Sevenoaks in partnership with the Conservators of Ashdown Forest and Natural England since 2012. A SAMM Strategy document has been developed and as well as SAMM proposals includes up to date (2021/22) data on SPA bird distributions.

6.70 The work to date includes a published SAMM tariff guidance document, which has most recently been updated in October 2019[77]. SAMM is required because local residents, notwithstanding SANGs being in place, are still likely to visit the Ashdown Forest SPA / SAC occasionally. Local Authorities that deliver residential development within the site's core recreational catchment (400m – 7km) have committed to collecting developer contributions to deliver a programme of visitor management and monitoring, and fund research that is relevant to the SPA / SAC

[75] Arnberger A. & Eder R. Exploring coping behaviours of Sunday and workday visitors due to dense use conditions in an urban forest. *Urban Forestry & Urban Greening* **11**: 439-449.
[76] Arnberger A. & Brandenburg C. (2007). Past on-site experience, crowding perceptions, and use displacement of visitor groups to a peri-urban National Park. *Environmental Management* **40**: 34-45.
[77] (October 2019). Ashdown Forest Special Protection Area (SPA) – Strategic Access Management and Monitoring Strategy Tariff Guidance for Lewes District Council, Mid Sussex District Council, Sevenoaks District Council, District Council of Tandridge, Tunbridge Wells Borough Council and Wealden District Council. Available at: https://www.wealden.gov.uk/UploadedFiles/Ashdown-Forest-SPA-SAMM-Tariff-Guidance-October-2019.pdf [Accessed on the 27/10/2021]

biodiversity interest. The following key measures have been identified in the recently developed SAMM Strategy[78] in consultation with the Conservators of Ashdown Forest and Natural England:

- Zoning Study – dividing the SAC / SPA into a series of zones with different approaches to visitor management; for example this could include a focal area for tourism (e.g. visitor centre and well-maintained paths) and areas where access is more limited;
- Communication / Engagement Plan – targeting a range of visitor groups and wider stakeholders, including on where to go and how to behave, steering on design for visitor information and directing information dissemination (noting that further mitigation measures would arise from this); and
- Parking Plan – This could consider improving car parks in locations that are most resilient (e.g. in the focal tourist areas) and considering how best to manage parking and visitors to protect the more sensitive areas of the SPA).
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6.71 In contrast to other avoidance and mitigation strategies, the SAMM tariff contribution for residential development in the Ashdown Forest SPA / SAC catchment zone is calculated on a per unit basis and is the same for all housing types (house, flat, studio flat – including all affordable housing). The SAMM tariff has been calculated using a cash flow model, accounting for the current housing projections, estimated costs of SAMM projects and a requirement for mitigation in-perpetuity. Consequently, the per-dwelling tariff presently stands at £1,170. This inter-authority project budget is reviewed annually, in line with changes to housing numbers and the timing of housing delivery.

6.72 To date SAMM funding has been provided to the Conservators of Ashdown Forest to produce the Code of Conduct, related information leaflets, signage and publication of the Ashdown Forest quarterly magazine. As further monies are collected from developers, these will be directed towards other high-priority SAMM deliverables, including ground-nesting bird surveys. An Access Management Officer has been in place since 2022 to deliver the management of the programme and funding. WDC is continually engaging with Natural England to ensure that SAMM funding is used in a way that is economic and provides effective mitigation.

Conclusion

6.73 Work on the mitigation approach for the projected growth in Wealden District has been ongoing. While an established framework for the delivery of SAMM is in place (a collaborative SAMM strategy approach with other adjoining authorities), research to identify adequately sited SANG(s) is ongoing to ensure that all housing developments can be effectively mitigated. The Council is working proactively with Natural England to progress their SANG inventory in support of the WLP and a 'call for sites' will also take place as part of the Local Plan process to assist in identifying suitable SANG sites to mitigate growth in the emerging Local Plan. Policy NE5 (Protecting Ashdown Forest SPA) of the Local Plan specifically sets out the requirements for mitigation provision on development within the core recreational catchment of the Ashdown Forest SAC/SPA and will therefore ensure the Habitats site is protected from harm.

6.74 **However, given that suitable SANG to mitigate the full amount of growth coming forward under the WLP has not yet been secured, adverse effects on the integrity of the Ashdown Forest SPA / SAC regarding recreational pressure currently cannot be excluded at the time of writing.** This HRA will be updated as further evidence becomes available and the WLP progresses towards submission.

[78] Liley D. & Lake S. (2023). Strategic access management and monitoring (SAMM) strategy for Ashdown Forest 2023-2027. Report by Footprint Ecology. 73pp.

Water Quantity, Level and Flow

Pevensey Levels SAC / Ramsar

6.75 The previous chapter determined that LSEs of the Wealden Local Plan on the Pevensey Levels SAC / Ramsar cannot be excluded. The site is designated for various species that rely on sufficient water levels because they live in aquatic habitats. For example, the little whirlpool ram's-horn snail floats on the surface of freshwater ditches and land drainage has been identified as a key threat to this species. Young snails require annual winter floods to colonise new ditches and maintain healthy, genetically diverse populations. Furthermore, the Pevensey Levels Ramsar is designated for its assemblage of wetland plants and invertebrates (especially Coleoptera and Odonata), which all require appropriate water levels.

Hydrology Background

6.76 The Pevensey Levels SAC / Ramsar has a large hydrological catchment that extends considerably beyond the designated site boundary. As set out in the Appropriate Assessment of the Wealden and Rother Core Strategies[79] (prepared jointly regarding hydrological impacts in the Pevensey Levels Ramsar), the site is traversed by three river systems that supply freshwater from the uplands to the levels, including the following:

- Western system (or Pevensey Haven) – catchment of approx. 97km^2 on the western side of the levels, with artificially heightened water flows due to treated sewage effluent from Wastewater Treatment Works (WwTWs) at Hailsham North and South; no low flow conditions in summer present;
- Wallers Haven – catchment of approx. 92km^2 on the eastern side of the levels, partly managed as a linear reservoir for the public water supply; this system is prone to low summer flows partly due to South East Water (SEW) abstraction at Hazards Green. Due to the existing issues with water supply to the eastern part of the Pevensey Levels SAC / Ramsar, the abstraction license issued to SEW cannot be increased beyond the existing permit.
- East Stream.

6.77 The Environment Agency publishes Catchment Abstraction Management Strategies (CAMS) for different hydrological catchments across England with the aim to allow sustainable resource use while also protecting environmental needs. The most recent CAMS for the Cuckmere and Pevensey catchment[80] indicates that water is available for licensing at high flows (i.e. Q30, the flow of a river that is exceeded 30% of the time), while restricted water is available at intermediate flows (Q50) and no water is available at low flows (Q70 and Q95). Where water is not available for additional licensing this highlights a scenario where flows are below the indicative requirement to support a healthy riverine ecology. Overall, within the catchment, water is only available for additional licensing in periods of high-mid to high flows of Ml/d and this is subject to hands-off flows[81].

6.78 The Pevensey Levels SAC / Ramsar largely encompasses reclaimed land with extensively grazed wet meadows, which are actively maintained by a system of pumping stations, water control structures, sluice and channels. Discharge to the sea, and therefore the overall water level within the SAC / Ramsar, is controlled via large gates at the downstream end of drainage channels. This system is augmented by pumping stations (covering approx. 62% of the site), which are used to pump floodwater into embanked channels. Approx. 600km of freshwater ditches, which also harbour the ecological interest features of the site, reflect the historic

[79] Wealden & Rother District Councils. (September 2010). Wealden & Rother Core Strategies – Appropriate Assessment regarding hydrology local to the Pevensey Levels. 28pp. Available at: https://www.wealden.gov.uk/UploadedFiles/AA_Final_26.10.10-2.pdf [Accessed on the 11/11/2022]
[80] Environment Agency. (March 2019). Cuckmere and Pevensey Levels Abstraction Licensing Strategy. 24pp. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793425/Cuckmere_Pevensey_Abstraction_Licensing_Stategy.pdf [Accessed on the 13/10/2022]
[81] Hands-off flow conditions describe situations in which abstractions from a waterbody must seize, as flows are no longer sufficient to safeguard the environment.

reclamation for continued pastoral use. Therefore, there is an important direct link between water level management and the qualifying features of the SAC / Ramsar. It is recognised that active water level management is essential in helping to restore the site to favourable condition.

6.79 An initial WLMP was developed for the Pevensey Levels SSSI in 2006, which identified the future objectives of water level management and how to achieve them. It was also determined that water levels would be best managed at an intermediate scale of 42 Water Level Management Units (WLMUs) to provide the best balance of flexibility and cost effectiveness. Review of water control structures was implemented between 2009 and 2011 and has been important in maintaining adequate water levels. The WLMP review undertaken by Atkins in 2014[82] confirmed that the WLMU scale was still the preferred option, both environmentally and economically, to manage the hydrology in the Pevensey Levels SAC / Ramsar into the future. Since its implementation, the WLMP has successfully maintained a target water level of 0.3m below ground level in all WLMUs under normal flow conditions.

Surface Run-Off

6.80 The development allocated in the Wealden Local Plan has the potential to alter the water quantity / level in the SAC / Ramsar in two main ways. Firstly, an increase in the coverage of impermeable urban surfaces might result in faster water surface run-off, resulting in altered water supply to the site. This is a particular threat for settlements that lie close to the SAC / Ramsar, including Westham (directly adjoining the site) and Hailsham (approx. 175m from the site at its closest point). Run-off from these conurbations may result in variability of the SAC's / Ramsar's annual flooding regime, particularly by facilitating the occurrence of flash floods. Surface run-off is considered to be a risk factor for flooding up to several hundred metres from ecological receptors. Furthermore, it is noted that the Pevensey Levels SAC / Ramsar lies in the Environment Agency Pevensey Operational Catchment, which covers several settlements in the south-east part of Wealden District, highlighting that there is the potential for hydrological linkage to urban run-off. Due to the complexity of wetland habitats, it is very difficult to predict the impact of increased surface run-off on the qualifying features of the Pevensey Levels SAC / Ramsar. Any development that increases the volume of impermeable surfaces has the potential to increase the 'in-combination' water supply to the site, particularly following intense rainfall events. Provided the magnitude of effect is sufficiently high, local hydrological changes within the ditch network may occur.

6.81 A review of residential and employment site allocations indicates that several of the sites fall within the hydrological catchment of the Pevensey Levels SAC / Ramsar. Surface run-off from impermeable surfaces in these sites has the potential to increase hydrological flows to the SAC / Ramsar, particularly during intense rainfall events. In turn, this could result in the water levels being outside the required range of qualifying features. Table 5 below lists the residential sites and Strategic Employment Allocations within the hydrological catchment of the Pevensey Levels SAC / Ramar and for which a risk of surface run-off impacts is present.

Table 5: List of residential sites and Strategic Employment Sites allocated within the hydrological catchment of the Pevensey Levels SAC / Ramsar.

Type of allocation	Parish	Settlement	Address
Residential	Berwick	Berwick Station	Land north of Recreation Ground, Station Road, Berwick Station
			Land West of Station Road, Berwick Station
	Heathfield and Waldron	Cross in Hand	Field to the east of Burnetts Farm, Firgrove Road, Cross in Hand
			Land at Sunnyside, A267, Cross In Hand
			Land to rear of Breton House (north), B2102, Cross In Hand

[82] Atkins. (2014). Pevensey Levels Water Level Management Plan Review 2014. 21pp. Available at: https://www.wlma.org.uk/uploads/Operating_Manual_Pevensey_Levels_WLMP_2014_Section_1-3_v2.pdf [Accessed on the 14/10/2022]

East Hoathly with Halland	East Hoathly	Land at Hesmonds Stud, East Hoathly
		Land east of South Street (Site A), East Hoathly
		Land off South Street, East Hoathly
Hailsham	Hailsham	150 and 152 Battle Road, Hailsham
		Amberstone Council Depot, Amberstone, Hailsham
		Bolneys Farm, South Road, Hailsham
		Fire Station, Victoria Road, Hailsham
		Hamlins Mill, Mill Road, Hailsham
		Harebeating Farm, Harebeating Lane, Hailsham
		Land at Grovelands School, adjacent to Gleneagles Drive, Hailsham
		Land at Hailsham Delivery Offices, 11 North Street, Hailsham
		Land at Harebeating Nursery, Harebeating Lane, Hailsham
		Land at The Market, Market Street, Hailsham
		Land at The Paddocks, South Road, Hailsham
		Land east of Battle Road, Harebeating Lane
		Land south of A271 and north of Harebeating Lane, Hailsham (Site B)
		Land south of Howard Close, Hailsham
		Land to the east of Battle Road, Hailsham
Westham	Hankham	Land to the west of the B2104, Hankham
Heathfield	Heathfield	Land at 15 Tower Street, Heathfield
Heathfield & Waldron	Heathfield	Land at Snatchells Farm, Cross in Hand Road, Heathfield
		Land south of Burwash Road and east of Tower Street, Heathfield
		Land south west of Ghyll Road, Tilsmore, Heathfield
Hellingly	Hellingly	Land adjoining 13 Station Road, Hellingly
		Land at Park Farm, New Road, Hellingly
Herstmonceux	Herstmonceux	Land at Collins Honda, Hailsham Road, Herstmonceux
Horam	Horam	Clearview Farm, Chiddingly Road, Horam
		Coxlow Farm, Horam Road, Horam
		Horeham Flat Farm, Chiddingly Road, Horam
		Land adjoining Discovery Way and Village Hall, Horam,
		Land at Cauldavon, Horebeech Lane, Horam
		Land at Great Easterfields, Chiddingly Road, Horam

	Hellingly	Lower Horsebridge	
			Woods Corner, North Street, Lower Horsebridge
	Ninfield	Ninfield	Land adjacent to Ninfield Reservoir, High Street, Ninfield
	Polegate	Polegate	Former Waterhouse Coaches site, Dittons Road, Polegate
			Hindsland Fields (east), Eastbourne Road, Polegate
			Hindsland Fields (west), Eastbourne Road, Polegate
			Land at Royal Mail Delivery Office, 74 High Street, Polegate
			Land at Shepham Lane, Polegate
			Paddock to front of Ditton Park Industrial Estate, Dittons Road
			Polegate Station Car Park (Site 1), High Street, Polegate
	Westham	Stone Cross	Dittons Nursery, Dittons Road, Stone Cross
			Land at and adjacent to The Downs Vew and Emberson, Hailsham Road, Stone Cross
			Land at Hazlebank, Rattle Road, Stone Cross
			Sharnfold Farm, Hailsham Road, Stone Cross
		Westham	Land adjacent to 125 Rattle Road, Westham
			Land at Peelings Lane, Westham
Strategic Employment Sites	Hailsham		Land east of A22, South Hailsham
	Hellingly	Hailsham	Knights Farm, Lower Dicker, Hailsham

6.82 Sustainable Drainage Systems (SuDS) are considered the main approach to reduce the volume of surface run-off that reaches sensitive ecological receptors by limiting the occurrence and magnitude of flooding. SuDS are interventions that manage surface water at source by limiting run-off to pre-development greenfield rates. As summarised in the Wealden Strategic Flood Risk Assessment (SFRA)[83], depending on local drainage characteristics / soil type and the type of development proposed, a variety of different techniques may be employed as SuDS, including living roofs, retention basins and ponds, filter strips, swales, soakaways and permeable surfaces. The ultimate aim of SuDS is to control the quantity of run-off (by slowing and / or holding back some of the water) to protect the natural water cycle. Due to the sensitivity of the Pevensey Levels SAC / Ramsar to hydrological changes, Natural England published an advice note on the use of SuDS in development adjoining the site in 2017, encouraging the inclusion of a SuDS-specific policy in emerging planning documents. This is reflected in the Local Plan through **Policy CC8 Sustainable Drainage**. This identifies that '*Applicants must demonstrate that sustainable drainage systems (SuDS) are an integral part of the proposed development and its design…*' Furthermore, regarding the Pevensey Levels SAC / Ramsar the policy stipulates that '*All developments should demonstrate that surface water will pass through at least two treatment stages. For development in the Pevensey Levels hydrological catchment, a minimum of three stages of treatment will be required.*' Furthermore, '*any planning application, including in outline,*

[83] JBA Consulting. (May 2022). Wealden Level 1 Strategic Flood Risk Assessment. 102pp. Available at: https://www.wealden.gov.uk/planning-and-building-control/planning-policy/planning-policy-evidence-base/strategic-flood-risk-assessment/ [Accessed on the 14/10/2022]

that triggers a Habitats Regulations Assessment (HRA) will need to provide sufficient details of an appropriate surface water drainage scheme to satisfy the HRA.'

6.83 Several sites in the settlements of Hailsham and Westham allocated in the hydrological catchment of the Pevensey Levels SAC / Ramsar have the potential to result in direct surface run-off to the site. **In line with Natural England guidance, it is recommended that SuDS should be mandatory in these site allocations. This would minimise the volume and increase the quality of surface run-off impacting sensitive ecological receptors.** Policy content to this effect is included in the WLP and adverse effects of the WLP on the Pevensey Levels SAC / Ramsar regarding water quality from surface run-off can therefore be excluded.

Water Abstraction

6.84 The second main way in which the Wealden Local Plan may impact upon the water level in the SAC / Ramsar is through abstraction of potable surface water and / or groundwater for the public water supply. If the regional water resources were sufficiently depleted, this would likely lead to a reduction in the water supply to the SAC / Ramsar with knock-on effects on its plant and invertebrate communities. The Wealden Local Plan allocates approx. 16,186 dwellings at an average occupancy of 2.4 people per household. Given that future water efficiency targets aim at a water consumption of 110l per person per day, the Plan would be expected to result in an additional water consumption of 4.2 million litres per day due to residential uses alone. Notably, public water supply is only considered to be an issue where new housing will require increases to existing Environment Agency (EA) abstraction consents or the use of previously unexploited water sources. This is because existing consents have already undergone the EA's Review of Consents (RoC) process, which considers the Conservation Objectives of Habitats sites.

6.85 Potable water in Wealden District is supplied by South East Water (SEW). The company's water supply area covers approx. 5,657km^2 across parts of Kent, Sussex, Surrey, Berkshire and Hampshire, supplying a population of roughly 2.2 million customers. For the year 2019/20 it was forecast that SEW would supply approx. 522 million litres of water per day (Ml/d), increasing to 643 Ml/d in drier periods. The water supply is met through the following resources:

- 73% is obtained from groundwater sources at over 250 boreholes and wells
- 19% is sourced as surface water, which includes six river intakes and three surface water reservoirs
- 8% is supplied from neighbouring water companies (e.g. Affinity Water, Southern Water) through the regional water grid

6.86 SEW's supply area is divided into eight Water Resource Zones (WRZs) and Wealden District is spread across WRZ2 and WRZ3. In turn, for management purposes, the WRZs are organised into three larger areas, namely Sussex (within which Wealden District is included), West and Kent. SEW serves an area that is under serious water stress, which is defined by the EA as a geographic area where current and future household demand covers a high proportion of effective rainfall. This places significant pressure on water resources as there is a high risk that additional abstraction will result in depletion of freshwater bodies, including those that are in hydrological continuity with the Pevensey Levels SAC / Ramsar. Positively, the existing stress on water resources has resulted in a compulsory metering programme that commenced in 2011, permeating approx. 90% of households by 2019/20.

6.87 The Water Resources Management Plan (WRMP) for South East Water for a 60-year period between 2020 and 2080[84], indicates that the supply-demand balance for its Sussex area will go into a deficit of 3.9 Ml/d by 2029/2030 (6.9 Ml/d in the peak summer period). The supply-demand deficit is projected to increase further mid-way through the plan (29.1 Ml/d in summer 2039/40) and reaching a peak deficit by the end of the planning period of 81.3 Ml/d in summer 2079/80. Clearly, active steps will need to be undertaken by SEW to address the supply-demand balance, which may include a range of demand and resource management options. In the next instance, an appraisal of the options proposed in the WRMP is undertaken, particularly to explore whether

[84] South East Water. (2019). Water Resources Management Plan 2020 to 2080. Available at: https://corporate.southeastwater.co.uk/media/3465/sew-final-wrmp-2020-2080.pdf [Accessed on the 28/10/2021]

these may include any resource development schemes (such as increases to the deployable output from groundwater or surface water resources).

6.88 A range of demand and supply management options have been identified in SEW's Preferred WRMP, which are forecast to bring the baseline supply-demand balance into surplus (including in summer peak periods towards the end of the WRMP, where projected water demand would have reached its peaks). These include:

- Leakage reductions
- Water efficiency measures
- Enhanced catchment management
- Regional water transfer with collaborating water companies (e.g. SES Water)
- Improved connectivity between component WRZs
- New surface water reservoirs (New Arlington Reservoir and Broad Oak Reservoir)

6.89 Most of these options are demand-management options, which are positive because they seek a higher degree of sustainability without the need for increased water abstraction. However, a potential impact on water quantity, level and flow is associated with the construction of new surface water reservoirs, such as those identified at New Arlington and Broad Oak. The WRMP identifies that part of the increased water demand in WRZ3 (which partly covers Wealden District) will be met by a new reservoir at New Arlington, with a projected intake from the River Ouse of 16 Ml/d by 2035. However, review of the EA catchment data explorer indicates that this new reservoir lies relatively far from the hydrological catchment of the Pevensey Levels SAC / Ramsar and therefore there is no potential for this new water abstraction to affect the hydrological regime in the site. Importantly, the WRMP does not indicate that any additional water abstractions are planned at Hazards Green in the Wallers Haven, which is experiencing depleted flows as a result of existing abstraction consents. These findings are in accordance with the screening HRA undertaken by SEW on the WRMP[85], which assessed potential in-combination impacts resulting from the plan on 20 Habitats sites, including the Pevensey Levels SAC / Ramsar. This assessed a total of 139 preferred and alternative options (including the new surface water reservoirs) and concluded that none of these were likely to result in LSEs on Habitats sites. Therefore, the HRA process was not taken beyond the LSEs screening stage and no Appropriate Assessment was required.

6.90 Given that there is no hydrological linkage between the new surface water reservoirs proposed by SEW and the Pevensey Levels SAC / Ramsar, it is concluded that the Wealden Local Plan will not result in adverse effects on the integrity of the site regarding water quantity, level and flow, both alone and in-combination.

Ashdown Forest SAC

6.91 LSEs of the Wealden Local Plan on the Ashdown Forest SAC were not excluded at the screening stage. Designated wet heaths with *Erica tetralix* are specifically adapted to humid conditions and may be at risk of drying if freshwater supply to a site decreases. An increase in water abstraction is the primary pathway through which water levels in the SAC could be affected. As highlighted in the previous section, Wealden District is supplied with potable water by SEW and is situated in an area of high water stress. It is noted that the HRA of SEW's WRMP does not consider impacts on the Ashdown Forest SAC, but the site is discussed here as a precautionary measure.

6.92 SEW's WRMP indicates that the supply-demand balance for the Sussex supply area was projected to be in deficit from early on in the plan period, requiring supply and demand management options to be delivered to meet the increasing water demand. For a detailed appraisal of the WRMP please refer to the previous section, as this information will not be

[85] South East Water. (August 2018). Revised Water Resources Management Plan 2020 to 2080 – Habitats Regulations Assessment Screening Report. 82pp. Available at: https://corporate.southeastwater.co.uk/media/2786/appendix-a-hra-screening-report.pdf [Accessed on the 28/10/2021]

reassessed here. Aside from demand management measures (discussed previously), several supply options with the potential for increased water abstraction are included in SEW's Preferred Plan, including a new groundwater scheme (Aylesford Newsprint) and two new surface water reservoirs (New Arlington and Broad Oak Reservoirs). The potential hydrological implications of these schemes for the Ashdown Forest SAC are discussed below.

6.93 All groundwater options (including the Aylesford Newsprint scheme) proposed for SEW's WRMP Unconstrained Options list, were assessed by the EA and most proposals were deemed to be too risky in terms of sustainability to be included in the Preferred Plan. The Aylesford Newsprint scheme, a component of the Preferred Plan, involves the purchase of existing abstraction licenses for the site's boreholes and streams (approx. 18.2 Ml/d). Given that it does not increase existing abstraction consents, it is determined that it has no potential to affect the water level in the Ashdown Forest SAC. The proposed surface water reservoirs that involve increased / new abstractions (i.e. New Arlington and Broad Oak) lie in different catchments to the SAC (far beyond the 5km inclusionary buffer zones typically used in HRAs of WRMPs) and have no hydrological connectivity with wet heathland in the site boundary.

6.94 Given that there is no hydrological linkage between the resource options proposed in SEW's WRMP and the Ashdown Forest SAC, it is concluded that the Wealden Local Plan will not result in adverse effects on the integrity of the site regarding water quantity, level and flow, both alone and in-combination.

Water Quality

Pevensey Levels SAC / Ramsar

6.95 Aquatic pollution poses a significant threat to biodiversity in the English lowlands. The major problem is the excessive input of phosphorus (the limiting nutrient in freshwater environments) and / or nitrogen (the limiting nutrient in the marine environment) from diffuse and point sources, potentially resulting in eutrophication. Water quality may also be impacted as a result of surface run-off from impermeable urban surfaces, carrying anthropogenic pollutants (e.g. phosphorus, nitrogen and toxic chemical substances) into waterbodies and hydrologically connected Habitats sites.

6.96 The Pevensey Levels SAC / Ramsar is an area of extensively grazed wet meadows, which is maintained by a network of drainage ditches. The site's interest features, including the little whirlpool ram's-horn snail (SAC feature) and its assemblages of freshwater molluscs, Coleoptera and Odonata (all Ramsar features) are directly dependent on freshwater input from its hydrological catchment. As such, phosphorus input from surface water and groundwater bodies as well as in the run-off from urban surfaces has the potential to affect designated features through a deterioration in water quality.

6.97 The Environment Agency provides data on the quality of surface waterbodies on their Catchment Data Explorer. Both chemical and ecological characteristics are assessed against relevant thresholds in the Water Framework Directive (WFD). Table 6 provides an overview of all eight waterbodies in the Pevensey Operational Catchment, indicating that six do not achieve good chemical status and all eight not achieving good ecological status. Notably, for six of the eight waterbodies, the water industry is identified as a reason for not achieving good (RNAG) status, specifically intermittent and continuous treated wastewater discharge from point sources such as Wastewater Treatment Works (WwTW). The parameters most influenced by treated sewage effluent and a determinant of water quality are phosphorus (the limiting nutrient in freshwater environments) and dissolved oxygen concentration. High nutrient concentrations can cause excessive algal growth and resulting low oxygen concentrations, with potential knock-on impacts on ecological parameters. Considering the available evidence base, future development and its likely implication for water quality could be a serious threat to the integrity of the Pevensey Levels SAC / Ramsar.

Table 6: Quality of waterbodies supplying water to the Pevensey Levels SAC / Ramsar as highlighted by their chemical and ecological characteristics.

Waterbody	Chemical Status		Ecological Status		Reasons for not achieving good (RNAG) status
Year	2016	2019	2016	2019	
Ashbourne and Hugletts Streams	High	Good	Poor	Poor	No sector responsible
East Stream	Moderate	Moderate	Moderate	Poor	Various, including point-source continuous treated sewage discharge
Horse Eye Sewer	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Hurst Haven at Hailsham	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Langney Sewer at Eastbourne	Moderate	Moderate	Poor	Poor	Various, including point-source continuous / intermittent treated sewage discharge
Nunningham Stream	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Pevensey Haven	Moderate	Moderate	Moderate	Moderate	Various, including point-source continuous / intermittent treated sewage discharge
Waller Haven between Windmill Hill and Coast	Good	Good	Moderate	Moderate	No sector responsible

6.98 Natural England's Site Improvement Plan (SIP) for the Pevensey Levels SAC / Ramsar also indicates that nutrient emission from WwTWs is one of the key drivers of the spread of invasive non-native species (INNS), such as floating pennywort *Hydrocotyle ranunculoides* and the genus *Crassula*. These INNS clog ditches and outcompete the designated native flora, while also preventing oxygen exchange with the air and leading to long-term deoxygenation. For example, at the time of writing, the SIP identified that there were over 45km of floating pennywort and 100ha of *Crassula*. AECOM is not aware of any nutrient neutrality requirements that are currently in place for the Pevensey Levels SAC / Ramsar.

6.99 The Supplementary Advice on the Conservation Objectives for the SAC identifies the following water quality targets that must be met for the SAC to be considered to be achieving its objectives:

- The mean range of soluble reactive phosphorous: 0.085 mgl^{-1} near Hailsham to 0.063mgl^{-1} near Windmill Hill.
- Dissolved Oxygen 70% saturation 10th centile
- Biochemical Oxygen Demand 4 Mgl^{-1} 90th Centile
- 0.6 Ammonia $mgNl^{-1}$

6.100 A primary factor in determining whether the Pevensey Levels SAC / Ramsar could be affected by the WLP, is whether there is potential hydrological connectivity between the Wastewater Treatment Works (WwTWs) serving sites allocated in the WLP and the SAC / Ramsar catchment. Owing to the low-lying nature of the Pevensey Levels, its hydrological catchment zone is delineated by a relatively clear boundary. The Environment Agency Catchment Explorer shows that the Pevensey Operational Catchment extends from Eastbourne in the west to Bexhill-on-Sea in the east. Two WwTWs discharge into the north-western end of the Pevensey catchment (Hailsham North WwTW and Hailsham South WwTW), which are likely to serve growth coming forward in the wider area around Hailsham.

6.101 According to Natural England's Site Improvement Plan, treated sewage effluent from both WwTWs flows into the SAC's / Ramsar's catchment. It is also highlighted that the storm water tank of one plant sits directly on the site, posing a further threat to its water quality. Water quality analysis undertaken by the EA indicates that phosphorus concentrations are higher than 0.1mg/l downstream of the WwTWs, which are beyond the maximum levels that can be tolerated by designated freshwater invertebrates and plant assemblages. This problem is exacerbated by low flows that are insufficient to dilute phosphorus levels in treated effluent. The existing threat to water quality is supported by the condition assessment of recipient waterbodies. The Pevensey Haven Water Body (in which Hailsham South WwTW sits) is classified as having 'Moderate Ecological Status', partly due to a 'Poor' score for dissolved oxygen and a 'Moderate' score for phosphorus. The Hurst Haven at Hailsham Water Body also has overall 'Moderate Ecological Status' with a 'Moderate' score for dissolved oxygen.

6.102 Protecting the integrity of Habitats sites regarding water quality is primarily the responsibility of wastewater treatment companies in consultation with the EA. The EA sets limits on the discharge of pollutants such as phosphorus, which helps determine the available headroom at WwTWs to serve residential growth coming forward under development plans. Generally, unless more prominent issues are present, remaining within the consented available headroom will ensure that there are no adverse effects on the integrity of Habitats sites. Southern Water is the statutory sewerage provider for Wealden District that owns and operates the two WwTWs at Hailsham. In relation to population growth, Southern Water has confirmed, that wastewater treatment capacity is not a constraint to future new development even if investment requirements are significant. This is because Southern Water has a statutory obligation to find solutions and provide infrastructure to serve new development.

6.103 For some of the proposed allocations, it may be the case that a new or revised environmental permit will be required from the Environment Agency. The Environment Agency would normally permit increased flows provided that treatment standards are improved so that the total load to the environment is not increased. This is in line with the 'no deterioration' principle. In the case of the Hailsham North and South WTW any future permit will need to ensure the integrity of the Pevensey Levels (SAC).

6.104

6.105 In a December 2018 Wastewater Position Statement, Southern Water set out that '*further review and trialling of current wastewater treatment technology identified a high rate biological treatment process that is capable of meeting the requirement to achieve a high quality effluent*.' An 'Operating Agreement' was developed with the Environment Agency to achieve the required high-quality effluent from the works. While the permit itself will include an annual average phosphorus level of 0.25mg/l, known as the 'Technically Achievable Limit' with current technology, Southern Water has committed to more stringent phosphorus reductions at Hailsham South and Hailsham North. The Operating Agreement will stipulate an annual average phosphorus concentration in treated sewage effluent of 0.1mg/l at Hailsham South WwTW and 0.08mg/l at Hailsham North WwTW. The construction, commissioning and operation of the process improvements was completed in 2022.

6.106 As of 2023 Southern Water has developed their Drainage and Wastewater Management Plan (DWMP) for the Cuckmere and Pevensey Levels Catchment. The DWMP includes two specific commitments relating to the Pevensey Levels designations: Investigating the potential impact of wastewater discharges on Good Ecological Status in designated Habitats at Cuckmere,

Pevensey and Hastings, and developing a nutrient budget by investigating the sources impacting designated habitats sites at Cuckmere and the Pevensey Levels. Options and investment needs for the Pevensey Levels are set out here: https://www.southernwater.co.uk/dwmp/cuckmere-and-pevensey-levels-catchment/options-development-and-appraisal-for-cuckmere-and-pevensey-levels. The DWMP also notes that '*the options and investment needs are not committed funding but an identification of the needs for funding. We will include these options in our future business plans as part of the Ofwat periodic review of water company funding to secure the investment needed to implement these options'.*

6.107 In relation to the Hailsham WwTWs, these now operate in accordance with Environmental Permits set by the Environment Agency, so that water quality objectives are protected. Water is now being treated to the best standard (the technically achievable limit – TAL), substantially reducing the phosphorus concentration in the treated sewerage that is released into the Pevensey Levels. . In the longer term it is understood that Southern Water are considering an additional outfall or an additional treatment works post-2030 to deal with any water quality concerns at Dry Weather Flow (DWF).

6.108 For some of the proposed allocations, it may be the case that a new or revised environmental permit will be required from the Environment Agency. The Environment Agency would normally permit increased flows provided that treatment standards are improved so that the total load to the environment is not increased. This is in line with the 'no deterioration' principle. In the case of the Hailsham North and South WTW any future permit will need to ensure the integrity of the Pevensey Levels (SAC).

6.109 All development sites will be required to provide a connection to the sewerage systems at the nearest point of available capacity. In order for any development to be granted planning permission, the release of the land should be conditional on sufficient wastewater treatment capacity (or headroom) being available in the relevant WwTW at the time of occupation / development.

6.110 Whilst there may be a need to consider environmental permits or investment requirements, the WLP contains adequate policy wording for ensuring that development with the potential to cause water quality issues from treated sewage effluent does not come forward. For example, **Policy INF4 Utilities** states that '*All development proposals should demonstrate that the infrastructure capacity for surface water disposal, water supply, wastewater treatment, gas, electricity and oil will be sufficient to meet the forecast demands arising from the development over its lifetime and that appropriate connections can be made to the development created.*' Furthermore, **Policy NE13 Water Environment and Water Infrastructure** extends specific protection to the water environment. It states that '*Development will only be permitted where it can be demonstrated that it would not result in an unacceptable risk to, or adversely affect, the quality, quantity, levels and ecology of surface water and groundwater resources within the district, including reservoirs.* Furthermore, the policy stipulates that '*Development proposals must demonstrate that there is adequate existing water supply infrastructure (foul and surface drainage as well as drinking water provision) to serve the development over its lifetime. Where provision is inadequate / not available, proposals must set out how the appropriate infrastructure improvements will be completed prior to the development's occupation. Any such proposals must be approved by the statutory undertaker…*'

6.111 In addition, Southern Water has also undertaken investigations on the surface water sewer network serving Hailsham, which has identified several misconnections that allow foul discharges to escape into the surface water system. The location of these faults has been shared with the Environmental Health team (part of Wealden District Council) to undertake their removal. It is considered that the repair of the sewer system is a very important step in improving the water quality in the Pevensey Levels SAC / Ramsar.

6.112 Overall, process improvements at the two Hailsham WwTWs have been completed and the WLP effectively prohibits adverse effects on Habitats sites through its policy framework. Notwithstanding this, further work on sewerage treatment capacity will need to be undertaken with Southern Water for the Reg.19 WLP to ensure that Environmental permits and / or investment can be achieved to ensure sufficient headroom capacity to deliver the growth strategy.

Until it is confirmed that headroom capacity can be achieved for the two WwTWs near Hailsham, adverse effects of the Wealden Local Plan on the Pevensey Levels SAC / Ramsar regarding water quality cannot be excluded. Further liaison with Southern Water and developers will take place to support the Regulation 19 Local Plan to identify any requirements and improvements necessary.

7. Conclusions & Recommendations

7.1 This HRA assessed the potential implications of the policies and site allocations included in the WLP on the following Habitats sites:

- Ashdown Forest SAC / SPA;
- Pevensey Levels SAC / Ramsar;
- Lewes Downs SAC; and
- Castle Hill SAC.

7.2 Considering the scale and location of growth and site-specific ecological sensitivities, the impact pathways that required consideration were atmospheric pollution, recreational pressure, water quantity, level and flow, and water quality. All identified impact pathways were taken forward to Appropriate Assessment.

Atmospheric Pollution

Ashdown Forest SAC

7.3 To evaluate the potential impact of the WLP on air quality in the Ashdown Forest SAC, three future growth scenarios were modelled (Future Baseline, Do Nothing, Do Something). Air quality modelling was undertaken at 20 transects throughout the SAC, including eight transects along the B2026 (WDC1 – WDC8), two transects along New Road (WDC9 and WDC10), two transects along Crowborough Road (WDC11 and WDC12), four transects along the A22 (WDC13, WDC14, WDC17, WDC18), two transects along the A275 (WDC15 and WDC16), one transect along the A26 (WDC19) and one transect off the B2188 (WDC20). Modelled atmospheric pollutants were NH_3, NOx and overall N deposition.

NH_3

7.4 The release of NH_3 will not have an adverse effect on the integrity of Ashdown Forest SAC because total ammonia is not forecast to exceed the lower critical level for protection of lichens and bryophytes at any locations where a diverse lower plant flora is found or would be expected, or to exceed the upper critical level at any area of heathland.

NOx

7.5 In all future 2040 scenarios the NOx concentrations are not forecast to exceed the critical level on any transect.

Total N Deposition

7.6 'In combination' nitrogen deposition is forecast to be a maximum of c. 0.3kgN/ha/yr or below at the nearest area of heathland on most transects, rising to c. 0.37-0.77 kgN/ha/yr on transects WDC13, WDC14 and WDC19. This in combination dose declines exponentially with distance from the road.

7.7 However, Natural England guidance makes it clear that exceedance of the '1% of the critical level/load' threshold does not automatically mean an adverse effect on integrity will arise. Paragraph 5.28 of that guidance states '*In practice, where a site is already exceeding a relevant benchmark, the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner'*.

7.8 The botanical effect on the nitrogen deposition due to traffic growth is not expected to be ecologically significant, being The worst-case additional nitrogen deposition to heathland as a

result of 'in combination' traffic growth (c. 0.77 kg N/ha/yr at 20m from WDC14) could, if it constituted a net increase in deposition rate, result in a small (c.0.3%) increase in grass (graminoid) cover and a reduction in species richness (whether grasses, mosses or total species richness) at the roadside equivalent to c.1.5% of the maximum (c.0.6 species i.e. if you dropped a random quadrat there is an approximately 20% probability you would record one less species). In other words, research indicates a nitrogen dose of 1.37 kgN/ha/yr would be required to reduce species richness at lowland heathland by 1 species and the forecast 'in combination' nitrogen dose at the nearest areas of heathland falls well below that amount. Moreover, because nitrogen deposition rates are predicted to significantly drop between 2019 and 2040 any impacts of the 'in combination' total nitrogen dose would occur as a slowing in the rate of nitrogen improvement (and thus potential speed of vegetation recovery) rather than a deterioration. For the worst-case in combination nitrogen deposition dose to heathland (0.77 at 20m from WDC14), this would slow the rate of reduction in nitrogen deposition that was otherwise forecast to occur by 3-4 years, which is not significant. Moreover, this scale of delay would only apply to approximately 4ha of heathland in the SAC, or 0.16% of the 2,261.42ha of heathland in the SAC.

7.9 Finally, Natural England have previously confirmed in discussions over the Wealden, Mid-Sussex, Tunbridge Wells and South Downs National Park Local Plans that nitrogen deposition from traffic is not preventing the SAC from achieving its Conservation Objectives, but that the principal issue is a lack of management, which is ultimately a land stewardship issue for site owners and managers rather than a consequence of the implementation of Local Plans.

Lewes Downs SAC

7.10 Air quality modelling was undertaken at two transects in the Lewes Downs SAC, including one transect along the A26 at South Malling and one transect along the B2192. Modelled atmospheric pollutants included NH_3, NOx and overall N deposition.

NH_3

7.11 The total annual NH_3 concentrations exceeded the lowest Critical Level at both modelled transects. However, Natural England confirmed that lichens and bryophytes are not a significant element of the international interest of the Lewes Downs SAC. Therefore, it is considered that the 1 µg/m^3 Critical Level is not applicable and a 3 µg/m^3 Critical Level is more appropriate. This higher Critical Level is not presently exceeded and is not forecast to be exceeded.

NOx

7.12 The Critical Level for the general protection of vegetation is not currently exceeded at the closest area of calcareous grassland and is not forecast to be exceeded under any future scenario for 2040.

Total N Deposition

7.13 A net reduction in nitrogen deposition of 2.49 kgN/ha/yr is still forecast by 2040 notwithstanding traffic growth, compared to a net reduction of 2.79 kgN/ha/yr in the hypothetical situation of no traffic growth. In combination traffic growth will therefore slow the rate of improvement by approximately 2-3 years at the closest area of calcareous grassland to the road. Moreover, this slowing of improvement does not apply over the entire site. But applies to 1.3ha (0.9% of the SAC), and much of this will be subject to a negligible slowing of 1-2 years. The remaining 99.1% of the SAC would be entirely unaffected.

Recreational Pressure

Ashdown Forest SAC / SPA

7.14 The qualifying features of the Ashdown Forest SAC / SPA are sensitive to a wide range of impacts that arise from recreation, including trampling damage, soil compaction, nutrient enrichment and disturbance. Data from previous visitor surveys highlight that Wealden District contributes a large proportion to the recreational burden in the SAC / SPA, which requires mitigation in line with the established frameworks in place for these Habitats sites.

7.15 The Appropriate Assessment indicates that the 1,600 dwellings allocated in the 7km mitigation zone established around the Ashdown Forest SAC / SPA would require the delivery of 30.72ha of bespoke and / or strategic SANG. Two SANGs (Walshes Park and Owlsbury Park) are operational within Wealden District, but the remaining capacity in both sites is limited to support additional growth in the emerging Local Plan and new SANGs will be required unless additional capacity can be provided through further enhancements at the existing SANG sites. Given the level of growth proposed in the Local Plan, additional SANGs will be needed to fully mitigate the 1,600 dwellings within Ashdown Forest's core recreational catchment. Work to identify additional SANGs (e.g. through a call-for-sites) is ongoing and will be progressed through the Local Plan process. The Council will continue to work proactively with Natural England to develop their SANG inventory.

7.16 Importantly, an updated SAMM strategy approach, the second main pillar of recreational pressure mitigation, has now been developed. This strategy secures the collection of financial developer contributions to fund a range of on-site mitigation measures, such as a Zoning Study, Communication / Engagement Plan and Parking Plan.

7.17 **However, given that suitable SANG to mitigate the full amount of growth coming forward in the 7km core catchment under the WLP has not yet been identified, adverse effects on the integrity of the Ashdown Forest SPA / SAC regarding recreational pressure cannot be excluded at the time of writing.** This HRA will be updated as further evidence becomes available and the WLP progresses towards its Reg.19 stage and submission.

Water Quantity, Level and Flow

Pevensey Levels SAC / Ramsar

Surface Run-Off

7.1 The Pevensey Levels SAC / Ramsar is sensitive to potential changes in water quantity, level and flow that are mediated through surface run-off from impermeable surfaces, which would typically arise in the form of flash floods. The ultimate aim of SuDS is to control the quantity of run-off (by slowing and / or holding back some of the water) to protect the natural water cycle. Due to the sensitivity of the Pevensey Levels SAC / Ramsar to hydrological changes, Natural England published an advice note on the use of SuDS in development adjoining the site in 2017, encouraging the inclusion of a SuDS-specific policy in emerging planning documents. This is reflected in the Local Plan through **Policy CC8 Sustainable Drainage**. Given that policy wording to protect the characteristic hydrological regime in the Pevensey Levels SAC / Ramsar is included in the WLP, there will be no adverse effects of the WLP regarding water quantity, level and flow through increased surface run-off.

Water Abstraction

7.2 The WLP will increase residential and employment development within Wealden District, for which there is a statutory obligation to deliver potable water. If the water supply to new developments would require the exploitation of additional water sources in hydrological connectivity with the Pevensey Levels SAC / Ramsar, this could reduce the freshwater supply to these sites. However, a review of SEW's WRMP indicates that the supply-demand deficit will be primarily addressed through demand management measures. The supply-side options identified in the WRMP (New Arlington and Broad Oak Reservoirs) do not extract freshwater from the hydrological catchment of the SAC / Ramsar, implying that there is no potential for impacting the site's water supply. This assessment is in agreement with the SEW's screening HRA of the WRMP, which concluded no LSEs on Habitats sites, including the Pevensey Levels SAC / Ramsar.

Ashdown Forest SAC / SPA

7.3 The wet heathland components in the Ashdown Forest SAC / SPA are sensitive to potential changes in freshwater supply. SEW's WRMP indicates that the supply-demand balance for the Sussex supply area was projected to be in deficit from early on in the plan period, requiring supply and demand management options to be delivered to meet the increasing water demand. The

Aylesford Newsprint scheme, a component of the Preferred Plan, involves the purchase of existing abstraction licenses for the site's boreholes and streams (approx. 18.2 Ml/d). Given that it does not increase existing abstraction consents, it is determined that it has no potential to affect the water level in the Ashdown Forest SAC. The proposed surface water reservoirs that involve increased / new abstractions (i.e. New Arlington and Broad Oak) lie in different catchments to the SAC (far beyond the 5km inclusionary buffer zones typically used in HRAs of WRMPs) and have no hydrological connectivity with wet heathland in the site boundary.

Water Quality

Pevensey Levels SAC / Ramsar

7.4 Water quality impacts from treated sewage effluent, particularly in relation to the two Hailsham WwTWs, has been a long-standing issue for the Pevensey Levels SAC / Ramsar and is also highlighted in Natural England's SIP. Therefore, Southern Water have implemented process improvements that reduce phosphorus concentrations in treated effluent. In relation to the Hailsham WwTWs, these now operate in accordance with Environmental Permits set by the Environment Agency, so that water quality objectives are protected. Water is now being treated to the best standard (the technically achievable limit – TAL), substantially reducing the phosphorus concentration in the treated sewerage that is released into the Pevensey Levels. . In the longer term it is understood that Southern Water are considering an additional outfall or an additional treatment works post-2030 to deal with any water quality concerns at Dry Weather Flow (DWF).

7.5 For some of the proposed allocations, it may be the case that a new or revised environmental permit will be required from the Environment Agency. The Environment Agency would normally permit increased flows provided that treatment standards are improved so that the total load to the environment is not increased. This is in line with the 'no deterioration' principle. In the case of the Hailsham North and South WTW any future permit will need to ensure the integrity of the Pevensey Levels (SAC).

7.6 A review of the WLP highlights that it contains adequate policy wording for ensuring that development with the potential to cause water quality issues from treated sewage effluent does not come forward. This wording is contained in **Policy INF4 Utilities** and **Policy NE13 Water Environment and Water Infrastructure** extends specific protection to the water environment.

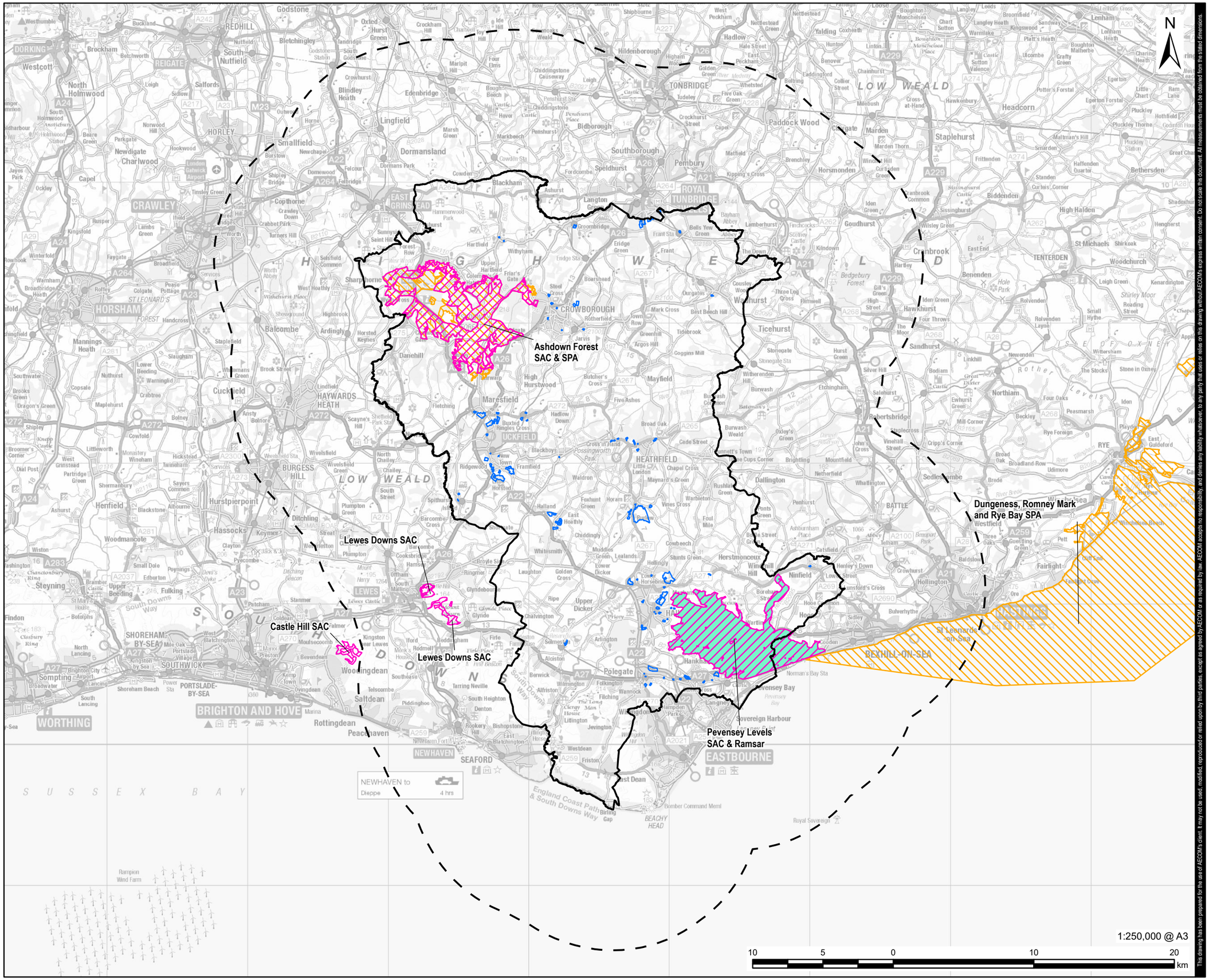
7.7 Notwithstanding this, further work on sewerage treatment capacity will need to be undertaken with Southern Water for the Reg.19 WLP to ensure that all allocated sites can come forward. **Until it is confirmed that adequate headroom is available in the two WwTWs near Hailsham, adverse effects of the WLP on the Pevensey Levels SAC / Ramsar regarding water quality from treated sewage effluent cannot be excluded.**

Appendix A Maps

Figure 4: Habitats sites in and within 10km of Wealden District in relation to sites allocated in the Wealden Local Plan.

Revision: 0 Drawn: ER Checked: AG Approved: JR Date: 2024-01-18

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PROJECT

Wealden Local Plan Habitats Regulations Assessment

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LEGEND

- Wealden District Boundary
- Wealden District Boundary - 10km Study Area
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar
- Allocations

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60659406

FIGURE TITLE

European Sites

FIGURE NUMBER

Figure 1

Appendix B Likely Significant Effects (LSEs) Screening

Table 7: Likely Significant Effects (LSEs) screening assessment of policies contained in the WLP.

Where the 'LSEs Screening Outcome' column is shaded orange, LSEs of the policy cannot be excluded and it is taken forward to Appropriate Assessment (AA). Where that final column is shaded green, a realistic pathway of impact is not present and the policy is screened out from AA.

Policy Number & Name	Policy Content	LSEs Screening Outcome
Chapter 04: Spatial Strategy		
Policy SS1 – Spatial Strategy for Wealden	During the plan period up to 2040 the Local Plan will: 1. Deliver sustainable and high-quality development that meets the needs of our communities for homes and jobs, whilst balancing the impact of growth on our natural environment, protected landscapes and the countryside. 2. Contribute to the continued sustainability of our towns and villages. This will involve supporting the improvements that are required to local services, community facilities and infrastructure. Subject to other policies in the plan, we will safeguard our existing employment and tourism sites and seek to deliver new employment and tourism sites, ensuring that people can access jobs, services and facilities locally. 3. Support and facilitate the 20-minute neighbourhood concept for our towns and villages to help create healthy, well-designed and integrated neighbourhoods. <u>Development boundaries</u> Subject to other policies in the plan, new development will be permitted within those settlements with an identified development boundary as shown on the Policies Map. This includes the following settlements: Crowborough, Uckfield, Hailsham, Heathfield, Polegate, Willingdon, Stone Cross, Westham, Pevensey, Pevensey Bay, Forest Row, Horam, Mayfield, Wadhurst, Bells Yew Green, Berwick Station, Blackboys, Buxted, Cross in Hand, East Hoathly, Eridge, Five Ash Down, Framfield, Frant, Groombridge, Hartfield, Herstmonceux, Isfield, Lower Horsebridge, Maresfield, Ninfield and Rotherfield. Within these settlements, development proposals should make the best use of previously developed land, apply an appropriate density to its use, ensure the creation of strong, sustainable, cohesive and inclusive communities including required infrastructure provision. Development proposals should also consider land take and the impact this may have on the natural environment and resources, whilst also relating well to the existing and surrounding character of the area.	This policy is not associated with LSEs on Habitats sites. The policy lays out the spatial strategy for the WLP. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	Employment The Council will support economic development proposals, which will deliver a growth in high-skilled jobs and an expansion of tourism that contributes towards the delivery of sustainable economic prosperity in the District. New strategic employment floorspace will be allocated for development within this local plan and the district's strategic employment sites will also be protected, alongside non-strategic employment land. Improvements to existing strategic employment sites (redevelopment, conversion, upgrading, intensification or reconfiguration) will also be supported where this meets other policies in the plan in order to meet the district's employment need. These sites will contribute to meeting an increase in employment land and jobs within the plan period. Town centres The role of our district, service and local centres will be protected and enhanced by encouraging a range of uses consistent with the scale and function of the centre having regard to its position in the hierarchy. Retail growth during the plan period will be focused within these centres in accordance with the town centre hierarchy and policies TC1 (District, Service and Local Centre Hierarchy and 'Town Centre' First Principles) and TC2 (Sequential and Local Impact Test). Countryside Land outside development boundaries will be considered as the countryside. The countryside will be protected unless development is supported by a specific policy referenced elsewhere in this plan.	
Policy SS 2 – Provision of Homes	New Homes 7.8 1. A housing target of 15,729 (net) dwellings will be delivered in the District between 1 October 2023 and 31 March 2040. The provision of homes will be met through committed schemes (with planning permission), site allocations within this local plan and windfall development, as set out in **Error! Reference source not found.**. Table 3: Number of residential dwellings to be delivered in the 7km recreational pressure mitigation zone surrounding the Ashdown Forest SPA / SAC.. 2. New housing (allocations and windfall) development is supported in the district's most sustainable settlements and will be located within the defined settlement areas within the district, as defined on the policies map.	LSEs of Policy SS 2A on Habitats sites cannot be excluded. Policy SS 2A identifies a net increase of 15,729 dwellings (of which 5,616 are new allocations) that will be delivered during the Local Plan period. These allocations will result in a population increase and, depending on their location, may contribute to the following impact pathways: • Atmospheric pollution • Recreational pressure • Water quantity, level and flow • Water quality Overall, Policy SS2A is screened in for Appropriate Assessment.
Policy SS 3 – Gypsy, Traveller ad Travelling Showpeople – Accommodation needs	To meet the identified accommodation need for Gypsies, Travellers and Travelling Showpeople within the District up to 2040, the Council will make provision for 51 pitches for Gypsies and Travellers and 3 plots for Travelling Showpeople in accordance with the needs identified in the GTAA for those who meet the PPTS definitions.	LSEs of Policy SS 3 on Habitats sites cannot be excluded. Policy SS 3 identifies 51 pitches for gypsies and travellers, and 3 plots for Travelling Showpeople will be delivered during the Local Plan period. These allocations will result in a population increase and, depending on their location, may contribute to the following impact pathways: • Atmospheric pollution • Recreational pressure • Water quantity, level and flow

<table>
<tr><td></td><td></td><td>

- Water quality

Overall, Policy SS3 is screened in for Appropriate Assessment.</td></tr>
<tr><td>Policy SS 4 – Retail Provision and Town Centres</td><td>The Council will support the provision of between 3,300 sqm and 4,800 sqm of

convenience retail floorspace and between 1,300 sqm and 1,800 sqm of

comparison retail floorspace by 2040. This will be achieved within our District,

Service and Local Centres as defined in Policy TC1.</td><td>LSEs of Policy SS 4 on Habitats sites cannot be excluded.

Policy SS 4 sets out the retail hierarchy and where town centre uses will be located. As such it at least partly dictates where employment development will be situated across Wealden District.

This development will result in a net increase in employment opportunities and, depending on its location, may contribute to the following impact pathways:

• Atmospheric pollution

• Water quantity, level and flow

• Water quality

Overall, Policy SS 4 is screened in for Appropriate Assessment.</td></tr>
<tr><td>Policy SS5 – Provision of Employment Floorspace</td><td>The Council will support the provision of at least 84,850 sqm of employment floorspace in use Classes E(g), B2 and B8 by 2040. This will be achieved through the following measures:

a. The allocation of land as employment sites as listed within Policy SS 6 Strategic Employment Sites;

b. The delivery of existing commitments for employment uses, with the largest commitments (above 5,000 sqm) already identified in Policy SS 6 Strategic Employment Sites;

c. The retention of existing employment premises across the district and particularly strategic employment sites identified in Policy EC2: Existing Strategic Employment Sites;

d. Supporting existing businesses through the provision of new employment premises/floorspace or the redevelopment, conversion, upgrading, intensification or reconfiguration of employment premises or floorspace on existing employment sites;

e. The delivery of new economic development in rural areas in line with Policy EC4 Rural Economy; and

f. The provision of new office floorspace (Use Class E(g)(i) within Wealden’s designated district, service and local centres.</td><td>LSEs of Policy SS 5 on Habitats sites cannot be excluded.

Policy SS 5 identifies that at least 84,850m^2 of employment floorspace of different use classes will be delivered in Wealden District over the Local Plan period. The provision of employment floorspace will result in a net increase in employment opportunities and, depending on its location, may contribute to the following impact pathways:

• Atmospheric pollution

• Water quantity, level and flow

• Water quality

Overall, Policy SS 5 is screened in for Appropriate Assessment.</td></tr>
<tr><td>Policy SS6 – Strategic Employment Allocations</td><td>To meet the employment and growth aspirations of the District, the following sites

<table><tr><th>Allocations</th><th>Employment floorspace (net)</th></tr><tr><td>Knights Farm, Lower Dicker, Hailsham</td><td>40,000 sqm</td></tr><tr><td>Woodside Park, Land East of A22, Hailsham</td><td>16,750 sqm</td></tr></table>
<table><tr><th>Large Employment Commitments[86]</th><th>Employment floorspace (net)</th></tr><tr><td>Land at Natewood Farm, Polegate Road, Hailsham</td><td>5,999 sqm</td></tr></table></td><td>LSEs of Policy SS 5 on Habitats sites cannot be excluded.

Policy SS 6 identifies the Strategic Employment Allocations that will be delivered in Wealden District over the Local Plan period. These allocations will result in a net increase in employment opportunities and, depending on their location, may contribute to the following impact pathways:

• Atmospheric pollution

• Water quantity, level and flow

• Water quality

Overall, Policy SS 6 is screened in for Appropriate Assessment.</td></tr>
</table>

[86] Over 5,000 sqm of employment floorspace (net) in use classes E(g), B2 and B8 with planning permission.

	<table><tr><td>Land West of Uckfield, Uckfield</td><td>13,495 sqm</td></tr><tr><td>Mornings Mill Farm, Eastbourne Road, Lower Willingdon</td><td>8,600 sqm</td></tr></table> **The sites are allocated to provide employment uses E(g), B2 and B8. Retail uses and other Town Centre uses (excluding offices) will not be permitted at these sites. Once delivered these sites will be considered as strategic employment sites and will form part of the sites listed in Policy EC2 – Existing Strategic Employment Sites. Development must be in accordance with the site-specific requirements set out in the policies of this draft Local Plan.**	
Policy SS7 – Ensuring Comprehensive Development and Housing Delivery	A comprehensive approach to site development will be expected for all new development, even where sites are in multiple ownership and provide a mix of uses, to ensure the good planning of an area. These principles will be achieved through the following policy measures: 1. Support for the provision of masterplans and design codes in line with Policy DE2: Masterplans and Design Codes of this Local Plan to help bring forward and co-ordinate the delivery of sites at scale within the District; 2. Ensuring that the applicant has applied proper consideration to how the policy requirements in this local plan (such as the provision of appropriate land uses, affordable housing, open space/green space, access, sustainable transport, sustainable drainage and other infrastructure etc.) relating to the whole site, with a phasing plan where appropriate, will be achieved; 3. Support for the sub-division of large sites, where this is proven to expedite the delivery of new homes or employment development and where this does not conflict with the comprehensive planning and delivery of the whole site when considered against other policies in this Local Plan; and 4. To assist in making sure that proposals for development are implemented in a timely manner (particularly housing sites), the Council will consider imposing planning condition(s) that require development to begin within a timescale shorter than the relevant three-year period, where this would expedite the development and would not threaten its viability or deliverability.	This policy is not associated with LSEs on Habitats sites. The policy seeks to ensure a comprehensive planning approach to site development, it will not in itself cause any LSEs. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.
Policy SS8: Responding to climate change	<u>Climate Change Mitigation</u> 1. Development proposals will be expected to deliver best practice and, where possible, innovative and creative solutions to mitigate climate change, contributing to meeting nationally binding targets to reduce greenhouse gas emissions and Wealden becoming a net zero district, as soon as possible. 2. Support will be given to development proposals that help mitigate climate change and consideration will be given to how development proposals: a. Reduce heat and power demands of the development; b. Improve energy consumption through energy efficiency measures;	This policy is not associated with LSEs on Habitats sites. The policy seeks to ensure that development maximises its contribution to addressing climate change impacts. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	c. Incorporate decentralised, renewable and low carbon energy; d. Re-use materials and minimise the impact of waste and the use of natural resources; e. Improve the energy performance of any existing buildings; f. Incorporate sustainable design and construction techniques including those relevant to whole life net zero carbon in the construction and operation of buildings and ensuring that development is zero carbon ready; g. Sequester carbon through land management opportunities, woodland creation, tree planting and / or any other innovative ways to capture carbon in the environment; h. Support landscape scale approaches to nature protection and recovery e.g. supporting the Weald to Waves Nature Recovery Corridor. i. Support regenerative farming and protection of soil health. j. Support well-connected communities in relation to their location to services, facilities, education, public transport and jobs, supporting a reduction in vehicle use (number and length of journeys) and avoiding car dependent behaviours. k. Support and deliver the improvement of walking and cycling routes, and access to public transport and transport sharing schemes; l. Support behavioural change to enable people to play their part in addressing climate change; m. Enable home working through digitalisation and broadband; n. Incorporate electric charging facilities and support the take up of electric vehicles; o. Achieve improvements in local air quality; p. Support low carbon farming (agricultural and horticultural) practices to increase productivity and carbon off-setting opportunities; and q. Incorporate well-designed green infrastructure to mitigate climate change and to deliver multiple-benefits. <u>Climate Change Adaptation</u> 3. Development proposals will be expected to protect people and nature through climate change adaptation and measures to improve climate change resilience. Support will be given to development proposals that promote and assist climate change adaptation and reduce the negative impacts of climate change. Consideration will be given to how development proposals: a. Incorporate design features and use construction materials to ensure that a building provides resilience and resistance to climate change; b. Are designed in relation to their layout and construction materials, prioritising passive cooling and reducing the potential for overheating; c. Minimise water and resource consumption; d. Take account of flood risk and coastal change through their location and design;	

	e. Integrate sustainable drainage systems, to minimise and control surface water run-off, provide flood storage capacity and improve habitats and species migration; f. Incorporate green infrastructure to help species adapt to climate change through preventing fragmentation or isolation of habitats and reducing risks such as flooding and the overheating of urban environments; g. Improve habitats for nature and wider environmental benefits, especially within local nature recovery networks.	
Policy SS9: Health, well-being and quality of life	The Council will expect new development to be designed to achieve healthy, inclusive and safe places that promote, support and enhance physical and mental health and well-being and therefore contribute to reducing health inequalities within the District. Development must support and address the health and wellbeing needs in Wealden as identified in the Joint Strategic Needs Assessment. To maximise opportunities for health and wellbeing benefits and to enable healthy lifestyles, development (as proportionate to the type and scale of development proposed) must demonstrate how it will: a) Provide high quality, well designed, safe and accessible developments for all age groups and abilities, creating a beautiful and healthy living environment and a distinctive place to live and / or work; b) Create integrated neighbourhoods that improve connectivity with the wider natural and built environment and to key services; c) Deliver good accessibility routes for all users through the provision, improvement or enhancement of well-connected streets and path networks, to enable active and sustainable travel, increasing physical activity and contributing to the creation of sustainable neighbourhoods; d) Provide opportunities to facilitate community cohesion and social inclusion, locating community facilities or spaces for people to meet and socialise in the best location for those walking, cycling, wheeling or using public transport; e) Provide a network of different types of spaces, incorporating multifunctional green infrastructure and access to nature, as well as enabling climate change resilience; f) Provide high quality private space as well as high quality inclusive public spaces; g) Support and facilitate healthy eating and food security through the provision of food growing opportunities such as allotments, orchards or community growing spaces as well as supporting local food production and markets; h) Take opportunities to improve the factors that can contribute to poor health and social inequalities such as noise, vibration, air quality, crime, local amenity, water pollution, deficiencies in open space, recreation and sports facilities and access to the countryside; and i) Contribute towards local labour training, placements / apprenticeships to improve skills to help tackle worklessness, especially for young people. <u>Health Impact Assessment</u> To support this policy requirement, all major development proposals between 30-149 residential units and / or commercial development of 1000 – 9,999sqm will be expected to submit an HIA screening assessment. This should be submitted at the pre-application stage to determine the level of HIA required proportionate to the proposed development.	This policy is not associated with LSEs on Habitats sites. The policy seeks to ensure that development is designed to achieve healthy, inclusive and safe places. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	The requirement for screening will also apply to smaller-scale developments where there are reasons to indicate that a proposal may give rise to a significant impact on health, especially where the development is located in within the one of the 20% most deprived wards or where there are high levels of childhood and / or adult obesity. All major development proposals of or over 150 residential units and/or 10,000sqm floorspace will automatically require an HIA to be undertaken to demonstrate both the individual and cumulative impacts of the proposal on the health and well-being of the community. Where a HIA is required the process must commence at the initial stages of the development so that it can inform the proposal, this will allow maximum scope for the health issues to be identified and addressed as the proposed scheme is progressed. The Council will agree timescales and stages with the applicant. An HIA should be undertaken in accordance with the East Sussex HIA Guidance (once published and any subsequent updates to it) which will set out details on required processes. The HIA recommendations should be incorporated into the proposal and submission documentation, these must demonstrate how any harmful impacts on health and wellbeing have been mitigated and how positive impacts have been maximised. An HIA report appropriate to the stage of the proposal will be required for full, outline and reserved matters applications as agreed with the Council.	
Policy SS10: Green Infrastructure	1. Where relevant, all development should protect, improve and enhance existing green infrastructure and, where opportunities exist, create additional green infrastructure that will play a meaningful role in the creation of a multi-functional and accessible network of GI across the district. New and the improvement of existing GI should be designed to provide benefits for the environment and people, supporting health and well-being and contributing to the response to climate change. 2. When determining planning applications, consideration will be given to how development proposals: a) Embed green infrastructure into the design and layout of the proposal taking into account locally distinctive character and creating a sense of place; b) Protect, retain, enhance, create and regenerate green corridors and links that contribute to the network, in particular, supporting ecological connectivity for wildlife between the development, town and village centres and the wider countryside; c) Maximise opportunities to enhance ecosystem services; d) Address any green infrastructure deficiencies in the area; e) Support the delivery of the Council's GI Strategy f) Maximise opportunities to provide multi-functional benefits including providing opportunities for people to interact with nature and encourage recreation, sports and healthier lifestyles, ensuring that opportunities will not cause harm to wildlife and habitats; g) Secure improved access to green infrastructure for residents of all ages and abilities. This may include improving rights of way, walking and cycle routes and networks and providing informal access, where this will not cause harm to biodiversity, landscape or heritage assets;	This policy is not associated with LSEs on Habitats sites. The policy seeks to ensure that development is designed to support the development of green infrastructure. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	h) Incorporate measures for adapting to and mitigating against the effects of climate change through innovative green infrastructure design solutions that will complement the provision of sustainable drainage, the management of flood risk and urban cooling; i) Where appropriate, provide opportunities for growing healthy food, including through allotments and other community schemes; j) Incorporate green infrastructure to support economic growth and sustainable tourism; k) Propose to manage and maintain the provision of green infrastructure; and l) Comply with any national green infrastructure standards. 3. Relevant development proposals must secure positive green infrastructure outcomes and will be supported where they contribute to all of the below (as relevant): a) Development is designed to respond to the location of existing green infrastructure and support and improve its functions and benefits; b) A proposal protects and improves the green infrastructure network through enhancement and/or regeneration; and c) Proposals provide new green infrastructure and / or introduce multifunctional uses, green links and corridors. 4. Where the scale of development is too small to accommodate on-site provision of green infrastructure or where the development is for the re-use of existing buildings, opportunities should still be sought to maximise opportunities for GI. This could include but is not limited to the following measures, green roofs, walls and nesting and roosting spaces for wildlife.	
Chapter 05: Climate Change Policies		
Policy CC1: Net zero carbon development	1. All development proposals should embed the Energy Hierarchy within their design from the outset and consider opportunities to provide solar PV and battery storage. 2. Development must utilise the landform, layout, building orientation, massing and landscaping to minimise energy consumption and maximise energy efficiency measures . <u>Residential development</u> 3. All residential development will achieve the following building performance standards for operational energy use and carbon emissions: a) A Total Energy Use Intensity (TEUI) of less than, or equal to, 35kWh/m^2 /Year; and b) A maximum space heating demand of 15kWh/$m^{2'}$ c) All residential development is required to achieve the LETI best practice 2030 target for embodied emissions, equating to 300 kgCO 4. For all planning applications for residential development, applicants are required to:	Policy CC1 is not associated with LSEs on Habitats sites. Policy CC1 requires all development proposals to include measures that contribute towards achieving the net zero carbon targets, including a fabric-first approach and the installation of renewable / low carbon energy generation. Furthermore, the policy specifies approaches for reducing emissions as well as requiring Energy Statements for new developments. While the achievement of net-zero targets is positive for the environment, this has no direct bearing on Habitats sites. Policy CC1 proposes no quantum or location of residential or employment development with the potential for negative impacts on Habitats sites. Overall, Policy CC1 is screened out from further appraisal in the Appropriate Assessment.

a) Demonstrate how the building performance standards will be met using the energy hierarchy in the design, construction, and operational phases. This includes connecting with district heat networks, where possible/available, the installation of renewable energy technologies and the installation of low carbon technologies.

b) Clearly demonstrate that where financial viability, technical constraints (i.e. overshadowing) or other policy reasons (i.e. heritage) mean the building performance targets cannot be met, set out why they cannot be met and the degree to which they are proposed to be met.

c) Detail how any requirements for carbon offsetting are to be delivered, where this is demonstrated to be necessary.

<u>Non-residential development</u>

5. All non-residential development (including building conversions but excluding industrial units) will achieve the following building performance standards for operational emissions:

   a. A Total Energy Use Intensity (TEUI) of less than, or equal to, 55kWh/m 2/year. To achieve this target, it may be necessary to install rooftop and/or on-site ground solar PV systems; and

   b. A maximum space heating demand of 15kWh/m2 per year.

6. For industrial units (including warehouses), applicants should clearly demonstrate the TEUI that is practicably achievable for Operational Energy yhrough a feasibility statement. This should demonstrate that the best energy efficiency outcomes have been achieved to serve the proposal, by maximising opportunities for on-site solar PV systems and optimising building fabric performance, heating and ventilation (see also Policy XX Sustainable Design and Construction).

7. All non-residential development should achieve the LETI best practice 2020 target for embodied emissions, equating to 600 $kgCO^2/m^2$ upfront embodied carbon. This requirement will increase from 2030 to the LETI best practice 2030 target for embodied emissions, equating to 350 $kgCO^2$.

8. For all planning applications for non-residential development, applicants are required:

   a. Demonstrate how the building performance standards will be met using the energy hierarchy in the design, construction, and operational phases. This includes using excess heat productively on-site or as part of a district heat network, the installation of renewable energy technologies and the installation of low carbon technologies.

   b. Clearly demonstrate that where financial viability, technical constraints (i.e. overshadowing) or other policy reasons (i.e. heritage) mean the building performance targets cannot be met, why they cannot be met and the degree to which they are proposed to be met.

   c. Detail how any requirements for carbon offsetting are to be delivered, where this is demonstrated to be necessary.

<u>All development</u>

	9. For developments of more than 10 dwellings or more than 1,000 sqm of non-residential floorspace, developers are required to demonstrate using a recognised methodology the actions taken to reduce operational ad embodied carbon and the land use change, construction, use of the developmentover its lifetime and potential decommissioning. 10. Where it can be clearly demonstrated that the building performance targets within this policy cannot be met, developments must, as a minimum, be designed and constructed to be 'carbon ready by design'. <u>The performance gap</u> 11. Proposals for new buildings should demonstrate that they have been tested to ensure the buildings will perform as predicted.	
Policy CC2: Reducing Energy Consumption in Existing Buildings	1. For all development proposals which involve the change of use or redevelopment of a building, or an extension to an existing building, the applicant is encouraged to consider all opportunities to improve the energy efficiency of that building (including the original building, if it is being extended). 2. Proposals which do consider and take forward viable opportunities as part of a scheme will, in principle and subject to other material considerations and policies in the Development Plan, be supported. In particular, residential properties which, following an extension or conversion, will achieve an improved EPC rating overall will, in principle, be supported. To gain this in principle support, a pre-development EPC should be provided as part of the application, together with evidence as to how a completed development EPC is likely to be rated. 3. For any work on a residential property, the use of the PAS 2035:2019 Specifications and Guidance (or any superseding guidance) is encouraged. In addition, applicants are encouraged to use the six principles of best practice within LETI's Climate Emergency Retrofit guidance Major development 4. Major development will be expected to achieve Excellent BREEAM Standard. Proposals for the refurbishment of 10 dwellings or more are expected to meet BREEAM Domestic Refurbishment Excellent. Where the above cannot be achieved due to economic viability the highest alternative BREEAM standard will be required to be achieved. It will be the responsibility of the applicant to demonstrate why Excellent cannot be achieved.	Policy CC2 is not associated with LSEs on Habitats sites. Policy CC2 stipulates that all development proposals will be expected to take advantage of all opportunities to improve energy efficiency of the building. While improvement in energy efficiency is positive for the environment, this has no direct bearing on Habitats sites. Policy CC2 proposes no quantum or location of residential or employment development with the potential for negative impacts on Habitats sites. Overall, Policy CC2 is screened out from further appraisal in the Appropriate Assessment.
Policy CC3: Sustainable Design and Construction	1. Development proposals will need to demonstrate how they have implemented the principles and requirements set out below; a) Reuse land and buildings, wherever feasible, prioritising use of brownfield land and existing buildings b) Use building materials with high environmental performance ratings including high thermal performance materials for walls, floors, roofs and glazing, to minimise environmental impacts and reduce energy use. c) Prioritise the use of locally sourced and/or sustainable materials and construction techniques that have smaller ecological and carbon footprints. d) Conserve natural resources including land, soil, water, energy and materials.	Policy CC3 is not associated with LSEs on Habitats sites. Policy CC3 provides support for sustainable design and construction within Wealden District. While sustainable design and construction methods are positive for the environment, this has no direct bearing on Habitats sites. Policy CC3 proposes no quantum or location of residential / employment development with the potential for negative impacts on Habitats sites. Overall, Policy CC3 is screened out from further appraisal in the Appropriate Assessment.

e) Contribute to the greening of developments by incorporating green and blue infrastructure into site and building design including green roofs and walls and using existing or creating new natural habitats where possible.

f) Reuse and recycle materials that arise through demolition and refurbishment, including the reuse of non-contaminated excavated soil and hardcore within the site, to minimise construction waste.

g) Consider the lifecycle of the building and public spaces, including how they can be easily adapted and modified to meet changing social and economic needs and how materials can be recycled at the end of their lifetime.

2. Where possible, developments should provide any heating systems through low carbon heating technologies. Where this is not feasible, heating systems should be designed to accommodate lower flow temperatures to enable the future use of air and ground source heat pumps. Applicants will need to demonstrate their rationale for the chosen heating/cooling system.

<u>Overheating and ventilation</u>

3. Development proposals must reduce potential overheating and reliance on air conditioning systems and demonstrate this in accordance with the following

cooling hierarchy:

a) Minimise internal heat generation through energy efficient design;

b) Reduce the amount of heat entering the building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls;

c) Manage the heat within the building through exposed internal thermal mass and high ceilings;

d) Passive ventilation;

e) Mechanical ventilation; and

f) Active cooling systems.

4. Developers are encouraged to use the standards from the Chartered Institute of Building Service Engineers (CIBSE) to evaluate the potential for overheating within the scheme design and demonstrate meeting these requirements.

<u>Accreditation schemes</u>

5. Proposals for non-residential development should seek to achieve a BREEAM minimum ‘Excellent’ rating, and where possible to achieve an ‘Outstanding’ rating.

6. Proposals for residential development, should seek to achieve a 4 Star rating under the Home Quality Mark scheme.

	7. When seeking accreditation, development proposals should focus on maximising the achievable credits under the energy use category. <u>Sustainability Statement</u> 8. For development proposals of 5 (net) dwellings or more (including flats) and all non-residential development over 500sqm gross internal floorspace, developers are required to demonstrate compliance with this policy.	
Policy CC4: Carbon sequestration	1. Development will be expected to protect existing carbon sinks and take opportunities to provide nature-based solutions for carbon sequestration where relevant. 2. Development proposals will be supported in the context of carbon sequestration where: a. They take opportunities to improve soil health and minimise disturbance to soils in order to protect soil biodiversity and carbon storage; and b. There will be a significant net gain in nature-based carbon sequestration through habitat retention, protection, enhancement and/or creation. 3. Where development is proposed on land containing identified carbon sinks, the applicant must consider the potential impacts of the development scheme on the carbon sink and seek to maximise opportunities to enhance its sequestration function. Applicants should submit a proportionate evaluation of the impacts and opportunities of the proposal on the identified carbon sink as relevant, and in all cases an appropriate management plan must be submitted.	Policy CC4 is not associated with LSEs on Habitats sites. Policy CC4 ensures that plans fully consider the impact of developments on carbon sequestration and take appropriate steps towards net gain. This is a positive policy for the environment although it will not directly impact any of the Habitats sites. Overall, Policy CC4 is screened out from further appraisal in the Appropriate Assessment.
Policy CC5: Renewable and Low Carbon Energy	1. Proposals for renewable and low carbon energy-generating and distribution networks, including heat networks, will be supported in the context of sustainable development and climate change, where: a) They will not result in significant adverse impacts on the local environment, including landscape character; the AONB; the setting of the South Downs National Park; species and habitats; amenity; agricultural land use and local heritage, that cannot be satisfactorily mitigated. This includes impacts such as noise, shadow flicker, vibration, visual impacts such as glint or glare. b) They are supportive of land diversification and allow for the continuation of the site for some form of agricultural activity proportionate to the scale of the proposal, where the current use of the land is agricultural. c) There are appropriate plans and a mechanism in place for the removal of the technology on cessation of generation, and restoration of the site to its original use or an acceptable alternative use. d) They maximise the use of the available resource by deploying installations with the greatest energy output practicable, taking account of other relevant policies within the Development Plan. e) They make use, or offer genuine potential for use, of any waste heat produced and where possible, create opportunities for co-location of energy producers with energy users, in particular heating. 2. Support will be given to community led energy schemes where evidence of community support can be demonstrated, with administrative and financial structures in place to deliver/manage the project and any income from it. 3. The Council will support district heat networks where feasible and where one exists, new development will be expected to connect to it. 4. The assessment of the impacts of proposals for renewable and low carbon energy schemes will need to be based on the best available evidence, including landscape capacity and sensitivity studies.	Policy CC5 is not associated with LSEs on Habitats sites. Policy CC5 provides support for renewable and low carbon energy initiatives within Wealden District. While renewable and low carbon energy initiatives are positive for the environment, this has no direct bearing on Habitats sites. Policy CC5 proposes no quantum or location of residential / employment development with the potential for negative impacts on Habitats sites. Overall, Policy CC5 is screened out from further appraisal in the Appropriate Assessment.

	Energy Storage 5. There is a presumption in favour of energy storage where it meets one or more of the following: a) It is co-located with an existing or proposed renewable energy development. b) It can be shown that it alleviates grid constraints or contributes to meeting c) Wealden's renewable energy supply; and It allows further renewable developments to be deployed.	
Policy CC6: Water efficiency	1. All new residential development must be planned positively to minimise its impact on, and make efficient use of, water resources, taking into account the impacts of climate change. 2. Development proposals, including the retrofit / refurbishment of existing buildings, should demonstrate that water reuse and recycling and rainwater harvesting measures have been incorporated wherever possible in order to reduce demand on mains water supply as part of an integrated approach to water management. 3. All new residential development must be designed and built to achieve the Building Regulation mains water consumption standard of 110 litres per person per day or the highest water efficiency standard that applies at the time of the planning application. 4. All proposals for non-residential development should maximise water efficiencies under the mandatory water credits category in the BREEAM assessment methodology.	Policy CC6 is not associated with LSEs on Habitats sites. Policy CC6 ensures that new residential development is built to higher water efficiency standard, achieving a maximum water usage of 110l per person per day. All development must be built to minimise its impact on water resources, including technologies such as rainwater harvesting and greywater recycling. This is a positive policy for Habitats sites that rely on adequate water supplies. Delivering development with reduced water requirements will reduce pressure on water companies and may help reduce the need for additional water abstractions from surface water and groundwater sources, either of which could be in hydrological connectivity with Habitats sites. Overall, Policy CC6 is screened out from further appraisal in the Appropriate Assessment.
Policy CC7: Managing flood risk	1. Development proposals will follow a sequential approach to flood risk management and will be guided to areas with the lowest risk of flooding from all sources, considering both existing and future flood risk. 2. Flood Zone 3b will be protected as the functional floodplain and its capacity to attenuate periodic flood events must not be compromised. Essential infrastructure that has passed the Exception test and water compatible uses will be permitted within Flood Zone 3b provided the development is designed and constructed to: a. remain operational and safe for users in times of flood; b. result in no net loss of floodplain storage; c. not impede water flows; and d. not increase flood risk elsewhere.	Policy CC7 is not associated with LSEs on Habitats sites. Policy CC7 addresses flood risk in Wealden District by directing development away from areas associated with highest flood risk. Overall, Policy CC7 is screened out from further appraisal in the Appropriate Assessment.

	3. Flood risk must be considered at an early stage in the design and layout of development to ensure that opportunities are maximised to reduce flood risk within the development. 4. All relevant development must be accompanied by a site specific Flood Risk Assessment (FRA) that complies with the tests, recommendations and guidance specified by the Council's Strategic Flood Risk Assessment (SFRA), the NPPF and PPG. Proposals will need to: a. Demonstrate that the development has been designed to be flood resilient and resistant and safe for its users for the lifetime of the development. b. Use the latgest climate change allowances for peak river flows, peak rainfall intensity and sea levels applicable to the catchment within which the development is located and the relevant epochfor the climate change allowance; and c. Ensure that any proposals involving modifications of ground levels are fully assessed and the findings clearly set out. 5. Where required, flood mitigation must be implemented in accordance with the Council's SFRA, NPPF and PPG. Developers must ensure that mitigation does not increase flood risk elsewhere and that floodplain compensation is provided where necessary. 6. All new development close to rivers should consider, working with partners, the opportunity to improve, enhance and restore the floodplain and river environment, including opportunities to create, enhance and improve the linking of green/blue infrastructure. 7. Where possible, developments should seek to open up existing culverts to create a green corridor. New culverts will not be permitt`ed, unless it is demonstrated that the culvert is essential infrastructure and there is no viable alternative. 8. The Council will support natural flood management measures and schemes that help to reduce flood risk in the wider catchment area. <u>Sequential and Exception Tests</u> 9. The development of sites at a greater risk of flooding (from any source) will only be considered where they comply with the requirements of the NPPF and associated PPG, specifically in regard to the application of the Sequential, and where required, Exception Tests. 10. Where schemes are located in flood risk areas, the sequential approach must be used to ensure that the most vulnerable parts of the development site are in the areas of lowest flood risk. Developers will be expected to undertake early discussions with the Council, EA, LLFA and Southern Water.	

	11. Where schemes are located within the Pevensey Levels catchment, developers will also be expected to undertake early discussions with the Pevensey and Cuckmere Water Level Management Board.	
Policy CC8: Sustainable Drainage	1. All development proposals should include adequate drainage provision and seek to reduce flood risk and contribute to flood alleviation. 2. Applicants must demonstrate that sustainable drainage systems (SuDS) are an integral part of the proposed development and its design unless they are demonstrated to be inappropriate. 3. Developments proposals should: a. Be designed and implemented having regard to the latest local, regional and national guidance on sustainable drainage and SuDS systems. b. Ensure that sufficient space is provided within a site so that the SuDS can be accommodated within a site so that the SuDS can be accommodated within the layout. SuDS should be discussed with the the LLFA early in the design process to ensure they can be fully integrated into the overall design and layout of the scheme. c. Demonstrate that arrangements are in place for the ongoing maintenance of SuDS schemes over the lifetime of the development. d. Be designed and implemented to be 'multi-functional' and contribute to wider Council objectives including enhancing biodiversity, recreational opportunities, landscape character and improving the green/blue infrastructure network. e. Deliver the lesser of either the greenfield rate in terms of volume and flow; or the existing rate/volume of discharge. f. Ensure that surface water is managed as close to its source as possible, using the following discharge hierarchy: a. Discharge into the ground; then b. Discharge to a surface water body; and then c. Discharge to a surface water sewer, highway drain, or other drainage system. g. Be designed and implemented to prevent surface water runoff entering the foul water drainage system. h. Manage all sources of surface water; i. Provide for emergency ingress and egress; 4. For phased development, it should be demonstrated that a strategic approach to drainage provision across the entire site and incorporates adequate provision for SuDS within each phase of development will be followed. 5. All developments should demonstrate that surface water will pass through at least two treatment stages. For development in the Pevensey Levels hydrological catchment, a minimum of three stages of treatment will be required. 6. Approval from the Lead Local Flood Authority of the design and long-term maintenance of any SuDS / drainage scheme will be required prior to development commencing. 7. Any planning application, including in outline, that triggers a Habitats Regulation Assessment (HRA) will need to provide sufficient details of an appropriate surface water drainage scheme to satisfy the HRA.	Policy CC8 is not associated with LSEs on Habitats sites. Policy CC8 addresses flood risk by making Sustainable Drainage Systems (SuDS) mandatory in new developments (including in small-scale residential development). In providing SuDS the latest local, regional and national guidance should be followed. Incidentally, the deployment of SuDS is also beneficial to maintaining adequate water levels and quality in Habitats sites. SuDS reduce runoff velocities to greenfield rates, minimising the potential for excessive flooding downstream. Furthermore, this also reduces the risk of water pollution, such as from sediment in solution and urban synthetic / non-synthetic contaminants. Overall, Policy CC8 is screened out from further appraisal in the Appropriate Assessment.

Chapter 06: Natural Environment Policies		
Policy NE1: Biodiversity, Geodiversity and Nature Recovery	1. The district's biodiversity resource will be protected, conserved, restored and enhanced. This will be achieved by: a. Giving appropriate weight to the statutory purposes and special qualities of the hierarchy of international, national, regional and local sites, priority habitats, priority species and irreplaceable habitats; b. Considering biodiversity at an early stage in site identification and design and ensuring that the location and / or use of development will not undermine designated sites, priority habitats and species and irreplaceable habitats, either directly or indirectly; and c. Ensuring that any biodiversity net gain is in addition to any mitigation or compensatory measures87. 2. Development proposals affecting biodiversity and geodiversity (including designated sites, priority habitats and species and protected species) will be required to apply the mitigation hierarchy of avoidance, mitigation and compensation. The Council will not support development proposals where harm is not adequately avoided, mitigated or compensated for or where a proposal would result in loss or damage[88]. The only exception to this is where: a. There is no suitable and alternative location for the development; and b. The adverse effects are unavoidable; and c. The benefits of development clearly outweigh the adverse effects including both the impacts it is likely to have on the features of the site or the national network of sites89; and d. Appropriate mitigation and compensation measures are agreed to ensure that the development results in a net benefit for biodiversity. <u>Local Wildlife sites, Geological Sites and Local Nature Reserves</u> 3. The mitigation hierarchy of avoidance, mitigation and compensation will also apply to Local Wildlife Sites, Geological Sites and Local Nature Reserves. Planning permission will not be supported where significant harm to biodiversity cannot be avoided. 4. Where planning permission can be granted having followed the mitigation hierarchy of avoidance and mitigation first, the remaining area of the site will be protected by a planning condition or obligation and opportunities should be taken as appropriate to provide satisfactory compensatory measures in this area for any harm caused. Where compensatory measures are required, these should be provided onsite however where this is not possible, offsite compensation will be required. <u>Biodiversity and Nature Recovery</u>	Policy NE1 is not associated with LSEs on Habitats sites. The policy seeks to ensure no harm arises to green and blue infrastructure and that development proposals will support nature recovery. This may play a positive role in improving the situation of Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

[87] BS8683:2021 Process for designing and implementing BNG; BNG - Principles and Guidance for UK construction and development, CIRIA 2019.
[88] NPPF 2021. Paragraph 180 (a)
[89] NPPF 2021. Paragraph 180 (b), (c) and Paragraph 181.

	5. Relevant development proposals will be expected to apply the following measures: a. Conserve, restore, enhance and/or create priority habitats and the habitats that support priority species; b. Protect, conserve, restore, enhance and strengthen wildlife-rich habitats, ecological corridors and stepping stones to help wildlife populations grow and move; c. Extend and buffer designated sites, irreplaceable habitats, priority habitats and where applicable support and implement measures within priority areas that could become of particular importance for nature recovery (as identified in the forthcoming Local Nature Recovery Strategy); d. Improve resilience to climate change by accounting for and sustaining ecosystem services including protecting geological value and good quality soils that support sites or habitats of biodiversity value; e. Ensure soil sustainability issues are identified at the earliest stage of scheme design to protect, and where possible enhance soil quality within the site and its functions for food production (if relevant), biodiversity and carbon storage. These issues should be carried through to become part of the environmental programme for the construction phase; f. Minimise any indirect adverse effects on habitats and species including those relating to recreation, lighting, disturbance, water quality, pollution or invasive species; g. Maximise opportunities to deliver additional ecological and biodiversity features and support biodiversity enhancement through scheme design; and h. Secure the long-term management and maintenance of biodiversity and ecological features as relevant to a scheme and in line with priorities and measures identified in the forthcoming Local Nature Recovery Strategy. 6. The loss of existing wildlife rich corridors and stepping stones should be avoided. Where this is not possible, appropriate mitigation and suitable compensatory measures, as relevant to the status of the habitat affected, will be required to protect and enhance the ecological network. 7. Planning applications will be expected to be supported by relevant environmental information, including protected species and habitat records, which is informed by appropriate and up-to-date ecological data/surveys. Any ecological surveys should be undertaken by suitably qualified professionals and in line with best practice / guidance and Government standing advice. Scheme design should be informed by an Ecological Constraints and Opportunities Map.	
Policy NE2 Biodiversity Net Gain	1. Qualifying development proposals are required to deliver a minimum overall net gain in biodiversity of 20% above the ecological baseline. Biodiversity net gain will be calculated and assessed using the appropriate DEFRA published biodiversity metric and UK Habitats Classifications. The biodiversity net gain calculation and assessment should be completed by a suitably experienced and qualified ecologist and be submitted in full with the application for development. 2. Development will need to demonstrate that the mitigation hierarchy has been followed. 3. Proposals for biodiversity net gain must follow the spatial hierarchy of net gain provision. This requires biodiversity net gain to be provided as part of the development. Only where it can be demonstrated that biodiversity net gain cannot meaningfully be achieved on site will the Council consider the potential for local enhancements and off-site biodiversity net gain. 4. Qualifying development proposals must be supported by a Biodiversity Net Gain Plan and supporting information to demonstrate how biodiversity net gain will be achieved. This should also include information on habitat management and monitoring for retained, enhanced or newly created habitats.	This policy is not associated with LSEs on Habitats sites. Policy NE2 seeks to ensure no harm arises to green and blue infrastructure and that development proposals will contribute to Biodiversity Net Gain. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	5. When granting permission for any proposals that include Biodiversity Net Gain, the Council will impose conditions or seek planning obligations or Conservation Covenants that secure appropriate management and monitoring regimes to deliver biodiversity net gain for at least 30 years after the completion of works.	
Policy NE3 Woodland, trees and hedgerows	<u>Woodland, tree and hedgerow protection and creation</u> 1. Development proposals will be supported where they protect, restore, manage and enhance existing woodland, trees and hedgerows and their features in accordance with good practice guidance and relevant standing advice. 2. New trees, woodland and hedgerows should be located to enhance and restore biodiversity, landscape character, visual amenity, contribute to the green infrastructure network, facilitate climate change mitigation and adaptation and enhance biodiversity. Any planting should be characteristic of the local area, in keeping with the site surroundings, including any historic context, and comprise of predominantly native species. Where possible and identified, planting should contribute to local ecological networks. 3. Development proposals will be supported where existing woodland, hedgerows and trees are taken account of and integrated into the design of development with long-term sustainable relationships being achieved. Sufficient measures, with allowance for future growth and maintenance requirements, must be provided to ensure protection from any likely impacts from development, including access. 4. Proposals should incorporate trees within the design and layout of development within both urban and rural areas, including tree-lined streets, to enhance the amenity of the public realm as well as providing climate change adaptation and mitigation benefits. 5. Proposals will need to demonstrate that sufficient measures can be implemented to protect trees, woodland and hedgerows both during and for the lifetime of the development to achieve current and long-term sustainable relationships. 6. Development proposals will not be permitted where they result in, or have been subject to, the unjustified loss of, or threaten the long-term retention of trees, woodland or important hedgerows that contribute to urban or rural landscape character, the green infrastructure network, visual amenity, the historic environment or wildlife importance unless: a. The proposal is supported by sound Arboricultural reasons for the loss/harm, taking account of British Standard BS5837-2012 (and any subsequent revisions) and demonstrated through work undertaken by suitably qualified professionals; b. The baseline biodiversity value of the site has been established and taken account of in biodiversity net gain requirements in accordance with legislation, government guidance and best practice standards; c. The development has significant benefits which outweigh the loss of/harm to the trees, woodlands or hedgerows concerned, where it is demonstrated retention is not possible; and d. Suitable replacement trees and/or hedgerows at an appropriate ratio to demonstrate suitable compensation, mitigation and enhancement are provided on site, or if necessary and justified, off site. 7. Where trees are lost through development, an appropriate number of suitable replacement trees, in terms of species and size, that replaces or exceeds that which is lost will be required to be planted on-site at appropriate locations. This does not necessarily replace the requirements of other policies with regard to net gain for biodiversity or green infrastructure but may contribute to those objectives. In addition, all development will be expected to increase tree cover. This should be to a level of one tree per dwelling or per 100sqm of floorspace (for non-residential developments) on-site and will comprise predominantly native species. Where it can be clearly demonstrated and justified that onsite provision is not possible, provision should be made off-site within the district.	This policy is not associated with LSEs on Habitats sites. Policy NE3 seeks to protect and promote the enhancement of woodlands, trees and hedgerows. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	8. An appropriate buffer, must be provided for woodlands and trees, commensurate with its ecological and arboricultural value, that will: a. Ensure long-term retention and future growth requirements of trees and woodlands; b. Not prejudice ecological or arboricultural processes including natural succession of biodiversity value, development of mature or veteran trees and/or features; c. Allow for tree and deadwood retention and accommodate tree risk management requirements, including windfall trees; d. Take account of, minimise and where possible avoid the impacts from tree and woodland shading, over-dominance, seasonal debris, increased property maintenance requirements and perception of risk. <u>Implementation and management</u> 9. Development proposals, where relevant, will be required to provide a landscape and ecological management (LEMP) plan that accords with best practice standards and regulatory and legislative requirements, to ensure the successful establishment, retention, restoration and enhancement of new and existing woodland, tree or hedgerow planting. 10.	
Policy NE4 Ancient Woodland and Veteran Trees	1. Development proposals for sites that are adjacent to, contain, or impact ancient woodland must: a. Be accompanied by appropriate Ecological and Arboricultural surveys that identifies and plots the location of ancient woodland, ancient trees and veteran trees. Ecological and Arboricultural surveys will be to recognised industry standards and best practice. b. Provide suitable and adequate buffers. All buffers are sacrosanct and should be clear of any development or ancillary infrastructure including new footways, cycleways, boardwalks and upgrading/widening/intensification of existing routeways; and c. Ensure that buffer zones consist of semi-natural habitat that protects, reduces and prevents against direct and indirect impacts on ancient woodland and contributes to biodiversity net-gain, ecological networks and green infrastructure.. 2. In the absence of site surveys and detailed assessments that demonstrate a 25m buffer is not required, the Council will assume a minimum buffer of 25m from the edge of the woodland, which allows for the presence of veteran trees and the fall height of mature trees. 3. Development resulting in the direct or indirect deterioration or loss of ancient woodland, ancient, aged or veteran trees will not be permitted unless there are wholly exceptional reasons demonstrated[90]. Mitigation and compensation will be required in such circumstances in accordance with the mitigation hierarchy. 4. The existing condition of ancient woodland or veteran trees likely to be impacted by development will not be an accepted reason to grant planning permission. Nor will development be permitted that relies on a final mitigation/compensation strategy that seeks	This policy is not associated with LSEs on Habitats sites. Policy NE4 seeks to ensure no harm arises to ancient woodland and veteran trees and that development proposals will contribute to the protection of these natural assets. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

[90] For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat (paragraph 180 (c) of the NPPF)

	to address loss or deterioration of ancient woodland during development phase where exceptional reasons have not been demonstrated. 5.	
Policy NE5: Protecting Ashdown Forest SPA	1. In order to prevent adverse effects on the integrity of the Ashdown Forest SPA and SAC, new development likely to have a significant effect, either alone or in combination with other plans or projects, will be required to demonstrate that adequate measures are put in place to avoid or mitigate any potential adverse effects. Development will only be permitted where it can be concluded that there is no likely significant effect or that proposals will not adversely affect the integrity of Ashdown Forest SPA and SAC. <u>Recreational pressure avoidance and mitigation</u> 2. Within a 400 metre buffer zone around Ashdown Forest SPA, mitigation measures are unlikely to be capable of protecting the integrity of the SPA and, therefore, residential development will not be permitted on sites where the curtilage of a property falls within 400m from the SPA. 3. Proposals for a net increase in residential development between 400m and 7km from Ashdown Forest SPA will be required to contribute to mitigation through: a. The provision of Suitable Alternative Natural Greenspace (SANG) to the minimum level of 8ha per 1,000 net increase in population or the provision of a financial contribution to a strategic SANG that is acceptable to provide avoidance / mitigation for the development; and b. A financial contribution to the Ashdown Forest Strategic Access Management and Monitoring (SAMM) Strategy. 4. The provision of SANG will be supported where they meet Natural England SANGs Guidelines. 5. Residential development schemes located adjacent or close to the 7km zone boundary will be assessed on a case-by-case basis and may require mitigation for the SPA. A site specific HRA will be required at the application stage for sites on or close to the boundary. 6. Alternative provision(s) for avoidance and mitigation to address the impact of visitors at Ashdown Forest will only be considered where it can be demonstrated that it will be effective and deliverable over the lifetime of the development. <u>Air Quality</u> 7. New development likely to result in increased traffic will need to be assessed through a site-specific Habitats Regulations Assessment at the application stage to consider any air quality impacts and to prevent adverse effects on the integrity of the Ashdown Forest SAC.	This policy is not associated with LSEs on Habitats sites. The policy NE5 seeks to ensure no harm arises on the Ashdown Forest SPA and SAC particularly from recreational pressure and will play a key role in ensuring development allocated in the plan has no adverse effect on the integrity of Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	8.	
Policy NE6: Landscape character	1. The Council will require all new developments to adopt a landscape-led approach from the outset to their design and layout to ensure that any potential adverse effects on the landscape from the proposal are avoided, before consideration is given to any mitigation measures. 1. Relevant development proposals will be required to recognise the contribution of the landscape to the district's environment, economy (including tourism) and communities and will be required to demonstrate how they have had regard to the East Sussex Landscape Character Assessment, the Wealden Landscape Evidence Base, Historic Land Classification (HLC) and any other relevant guidance in their Design and Access Statements. 2. Development proposals will be supported where they seek to protect, maintain, enhance and/or reinforce the key characteristics and qualities of landscape character and landscape components as relevant to the location of the proposal. 3. Development proposals will need to demonstrate that they have considered the following in respect of their potential impact on the landscape, including any cumulative impacts: a) Geology and soils; b) Topography; c) Hydrology; d) Landcover, biodiversity and ecological character; e) Biodiversity Opportunity Areas and/or other sites designated for their environmental importance; f) Ecosystem services[91] such as food production, the regulation of the climate, the purification of air and water, flood protection, soil formation and nutrient cycling; g) Historic character and landscape setting; h) Heritage assets and cultural influences; i) Special landscape characteristics; j) The degree of openness and sensitivity of the landscape to change; k) The settlement pattern, settlement character, its setting and identity; l) Open and valued views; m) Perceptual character including tranquillity and dark night skies; n) Climate change mitigation and adaptation; o) The pattern of key valued landscape features such as fields, woodland, trees, hedgerows and waterbodies; and	This policy is not associated with LSEs on Habitats sites. Policy NE6 seeks to protect landscape character. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

[91] Services provided by the natural environment that benefit people.

	p) The pattern of roads (including footways and cycle routes), Public Rights of Way and Bridleways. 4. Any landscape mitigation that is required must be commensurate with the surrounding area and must seek to contribute to local distinctiveness. Where planting is considered appropriate, this must be characteristic of the local area, in keeping with the site surroundings, including any historic context, and be compatible with the underlying soils. Where appropriate, native species of local provenance should be used. 5. Landscape mitigation and/or planting schemes should, overall, seek to enhance the green infrastructure network.	
Policy NE7 The High Weald AONB National Landscape	1. Development within, or affecting the setting of, the High Weald AONB, as defined on the policies map, will only be permitted if it conserves and enhances natural beauty, having regard to the character of the landscape, its special qualities, its character components and functions as set out in the High Weald AONB Management Plan. Development should not detract from the visual qualities and essential characteristics of the AONB, including views into and out of the AONB landscape, in relation to its location, siting, scale or design. 2. The AONB is a living landscape and certain development may be acceptable to support the land-based economy, access to the landscape and the social well-being of communities, where this does not impact on the AONBs special qualities and characteristics. 3. Development compatible with conserving and enhancing natural beauty proposed within the AONB should: a) Be limited in scale and extent and appropriate in terms of its nature and location; b) Demonstrate a positive contribution to the objectives of the High Weald AONB Management Plan; c) Have regard to the High Weald Housing Design Guide, where relevant; d) Apply a landscape-led design approach that reflects the High Weald Character, using high-quality architecture; e) Respond to the historic pattern and character of settlements; and f) Protect tranquillity and dark night skies. 4. In accordance with national policy, major development will not be supported except in exceptional circumstances and where it can be demonstrated to be in the public interest[92]. 5. Development proposals will be required to submit sufficient information as part of an application to enable any impact of the proposed development to be considered, taking into account the AONB Management Plan and design guide. 6.	This policy is not associated with LSEs on Habitats sites. Policy NE7 seeks to protect the High Weald AONB. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

[92] See paragraphs 176 – 177 and Footnote 60 of the National Planning Policy Framework (publishing.service.gov.uk)

Policy NE8 Setting of the South Downs National Park	1. Proposals for development on land that contributes to the setting of the South Downs National Park will only be permitted where it does not detract from, or cause detriment to, the visual and special qualities (including dark skies), tranquillity and essential characteristics of the National Park. 2. Development proposals should ensure no adverse impacts on any transitional open green spaces between the site and the boundary of the South Downs National Park, nor on the views, outlook and aspect, into and out of the National Park by virtue of its location, scale, form or design. 3. Development should be consistent with National Park purposes and must not have a significant adverse impact on the National Park or its setting both alone or cumulatively. Assessment of such development proposals will have regard to the South Downs National Park Local Plan, the South Downs Management Plan and other relevant adopted planning documents and strategies, as relevant. 7.	This policy is not associated with LSEs on Habitats sites. Policy NE8 seeks to protect the setting of the South Downs National Park. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.
Policy NE9 Agricultural Land	1. Where development of agricultural land is required, applicants should seek to use areas of poorer quality agricultural land in preference to that of higher quality, except where this would be inconsistent with other sustainability objectives. When determining quality, applicants should take account of the agricultural lands value in terms of its contribution to food production and wider ecosystem services and natural capital. 2. Where site-specific ALC studies are not available, the Local Planning Authority will assume that the site is classified as best and most versatile. Applicants will be required to submit information on the status of a site in such cases. 3. Planning applications that would result in the loss of best and most versatile agricultural land will need to justify why the loss of the agricultural land is acceptable and also assess the impact of the loss of the agricultural land on the wider farming resource, natural capital, and ecosystem services. The Council will seek to protect the best and most versatile agricultural land from development. 8.	This policy is not associated with LSEs on Habitats sites. Policy NE9 seeks to protect areas of the best and most versatile agricultural land by establishing planning conditions pertaining its development. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.
Policy NE10 Light pollution and dark skies	9. 1. All proposals should have regard to relevant guidance on lighting within developments to ensure any negative impacts on the natural and built environment are avoided and mitigated. 2. All proposals, regardless of scale and location, must clearly demonstrate that all opportunities to reduce light pollution have been taken, and should have due regard to the following: a) All opportunities to avoid the installation of lighting schemes have been investigated and taken wherever possible; b) Having fully addressed (a), that the lighting scheme is necessary and appropriate for its intended use/purpose and that any adverse impacts are avoided in the first instance, or if that is not achievable, are mitigated as far as possible; c) The design of the lighting scheme has fully considered the light source and intensity being used, the luminaire design, height, and angle, including any baffles and cut-off shields where required;	This policy is not associated with LSEs on Habitats sites. Policy NE10 seeks to minimise light pollution. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	d) The means of lighting would not cause an unacceptable level of impact on wildlife, local heritage assets, or the wider landscape; e) The lighting scheme is energy efficient and uses low energy LED where possible; and f) There are control mechanisms to dim or switch off external lighting schemes when not required. 3. Specific consideration should be given to the dark skies of the High Weald AONB, having regard to the ILP guidance for such landscape designations and as set out in the High Weald AONB Management Plan and High Weald Design Guide, for lighting schemes on developments within or adjacent to the High Weald AONB. 4. Any development proposals on land that contributes to the setting of the South Downs National Park must take full account of the Parks International Dark Sky Reserve status when designing any lighting schemes. Development must have regard to the relevant policies on dark night skies within the South Downs Local Plan 2011-2033.	
Policy NE11 Noise pollution	1. 1. Within the district, areas of tranquillity; nationally designated landscapes; designated nature conservation sites and occupants of residential properties, will be protected from unacceptable levels of noise as a result of development. 2. Development proposals for noise sensitive uses[93] are required to clearly identify any likely adverse noise impacts on the sensitive receptors that are intended to use or occupy the development from existing nearby sources of noise. 3. Development proposals for noise generating uses[94] are required to clearly identify any likely adverse noise impacts arising from the proposed development on existing nearby sensitive receptors, including the natural environment. 4. Planning applications will be required to include a Noise Impact Assessment where consideration under (2) and (3) indicates the potential for Observed Adverse Effect Levels of noise. The Assessment must be undertaken by a suitably qualified person and consider the relationship in detail. 5. Where evidence of an Observed Adverse Effect Level noise impact exists, applicants are required to demonstrate how the proposed development will be designed and implemented in order to: a) prevent any present and very disruptive Significant Observed Adverse Effect levels[95]; b) avoid any present and disruptive Significant Observed Adverse Effect levels; and c) mitigate any present and intrusive Lowest Observed Adverse Effect levels[96]	This policy is not associated with LSEs on Habitats sites. Policy NE11 seeks to ensure minimise noise pollution. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

[93] Land uses where sensitive receptors are concentrated, including residential, schools and nurseries, hospitals, care facilities, and certain public amenities.
[94] Land uses that have the potential to generate levels of noise capable of resulting in adverse effects on the health and quality of life of sensitive receptors, including commercial and industrial land uses, sports and leisure facilities, and places of entertainment (bars, pubs, clubs, music venues, etc).
[95] This is the level of noise exposure above which significant adverse effects on health and quality of life occur.
[96] This is the level of noise exposure above which adverse effects on health and quality of life can be detected.

	6. Development proposals will be supported where: a) Development is located and designed to minimise the impact of noise on areas of tranquillity and where residential properties / occupants will not be exposed to an unacceptable noise impact that adversely affects the amenity of existing or future users; b) Good design is used to improve and enhance the acoustic environment and reduce the impact of noise generated by the development; and c) The impact of noise on the surrounding environment and noise sensitive receptors is satisfactorily mitigated through noise attenuation measures. 7. Where there will be an unacceptable adverse effect on sensitive receptors which cannot be adequately prevented, avoided, and/or mitigated, planning applications will be not be supported. 8. Planning conditions will be used to ensure that mitigation measures are satisfactorily implemented.	
Policy NE12 Air quality	1. 1. Development proposals should seek to improve air quality and reduce the effects of poor air quality, ensuring compliance with the objectives set out in the latest Air Quality Strategy for England, in place at the time of the application, the Air Quality and Emissions Mitigation Guidance for Sussex and/or any subsequent local air quality objectives. 2. Development proposals will only be supported where they: a) Do not result in significant adverse impacts on sensitive receptors, including human health, sensitive habitats and species and any sites designated for their nature conservation value, from any sources of emissions to air; b) Are not located where they would be at unacceptable risk from, or be adversely affected by existing sources of odour, dust and /or other forms of air pollution; and c) Minimise any air quality impacts, including cumulative impacts from extant developments, both during the construction process and lifetime of the proposed development, either through the design of the development or, where this is not possible or sufficient, through appropriate mitigation measures. 3. Development proposals are required to include a detailed Air Quality Assessment, where: a) major development is proposed and has the potential, including when combined with the cumulative effect of other approved developments and site allocations, to have significant adverse impacts on air quality; or b) the proposed development has the potential to result in significant adverse impacts and is within, and in close proximity to a sensitive habitat and/or species, including any site designated for its nature conservation value; or	This policy is not associated with LSEs on Habitats sites. The policy seeks to ensure no harm arises to air quality. It is not specifically associated with Ashdown Forest SAC but will play a positive role in improving the situation of the SAC. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	c) development would introduce or intensify sensitive uses within an area that is known to experience existing poor air quality conditions. 4. Where an Air Quality Assessment identifies potential significant adverse impacts on sensitive receptors from any source, the applicant must detail the appropriate avoidance and mitigation measures that will be implemented to prevent the identified impacts, including impacts on future occupiers or users of the site. 5. Mitigation measures on a scheme will be secured through planning condition and / or planning obligation depending on the scale and nature of the development and its associated impacts on air quality.	
Policy NE13: Water Environment and Water Infrastructure	1. <u>Water environment</u> 1. Development will only be permitted where it can be demonstrated that it would not result in an unacceptable risk to, or adversely affect, the quality, quantity, levels and ecology of surface water and groundwater resources within the district, including reservoirs. Applicants must have due regard to the Environment Agency's Groundwater Protection guides in relation to potentially hazardous development proposed within a Source Protection Zones (SPZs) or within 50m of a private water supply 2. Development proposals must account for possible groundwater contamination in SPZs and where aquifers are present. Proposals will only be supported where it can be demonstrated that adequate safeguards against possible contamination of groundwater supplies or aquifers can be agreed, implemented and maintained. 3. New development adjacent to watercourses should seek to restore rivers to their natural state, including through de-culverting piped watercourses, where possible. 4. Any development adjacent to, over or in a watercourse needs to take into account the Water Framework Directive requirements and opportunities outlined in the South East River Basin Management Plan. 5. Potentially polluting development will not be permitted where there is a risk that it will cause harm to sensitive aquatic environments/areas within the district. 6. Work beneath the water table will not be permitted unless there is a comprehensive ground water management scheme agreed for the construction, operation, restoration, and ongoing management of the proposal. <u>Water Infrastructure</u> 7. Development proposals must demonstrate that there is adequate existing water supply infrastructure (foul and surface drainage as well as drinking water provision) to serve the development over its lifetime. Where provision is inadequate / not available, proposals	This policy is not associated with LSEs on Habitats sites. Policy NE13 seeks to ensure no harm arises to the water environment or quality. It is not specifically associated with Pevensey Levels SAC/Ramsar but will play a positive role in improving the situation of the SAC/Ramsar, or other hydrologically sensitive Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.

	must set out how the appropriate infrastructure improvements will be completed prior to the development's occupation. Any such proposals must be approved by the statutory undertaker. 8. Development should connect to a public sewage treatment works. If this is not feasible, proposals should be supported by sufficient information to understand the potential implications for the water environment. 9. In the interests of securing long-term water supply and wastewater management needed to serve existing or new development, proposals for new, or the expansion of existing, water supply or sewage treatment facilities and networks will be permitted provided that: a) the need for such facilities outweighs any adverse land use or environmental impacts; and b) that any such adverse impact is mitigated / minimised. 10. Necessary infrastructure provision will be secured through planning conditions and / or obligations.	
Policy NE14 Contaminated Land and Land Stability	1. 1. Proposals on sites where land contamination/instability is known or suspected, or the site is within the vicinity of contaminated/unstable land, are required to submit appropriate Site Risk Assessments, which establish the full nature and extent of any land contamination/instability that may adversely affect sensitive receptors[97], both on-site and in the surrounding area. 2. Where evidence of contamination is identified, an Options Appraisal and Remediation Strategy are required to be submitted and agreed with the Council, and they must demonstrate that the land is to be made safe for its intended purpose, detailing: a) the appropriate sustainable remediation measures that will be implemented in order to prevent and/or avoid significant harm to sensitive receptors, both on-site and in the surrounding area, including future users of the site; b) the appropriate mitigation measures that will be implemented in order to reduce to a minimum any risks presented to the health of sensitive receptors from land contamination; c) that there is no inappropriate risk to a waterbody, including groundwater and aquifers; and d) that there will be no adverse impact by the removal and treatment of the contamination on human or ecological health. 3. If suitable remediation cannot be provided, or the relevant reports indicate that there will be an unacceptable adverse impact on sensitive receptors which cannot be adequately prevented, avoided, and/or mitigated, planning permission will be refused.	This policy is not associated with LSEs on Habitats sites. The policy seeks to ensure contaminated land is not disturbed. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, this policy is screened out from further appraisal in the Appropriate Assessment.
Chapter 7: Historic Environment		

[97] Sensitive Receptors - Features that are prone to damage from pollution, such as living organisms (including humans), ecological systems, land use, controlled waters, groundwater and the natural environment

HE1: The Conservation, Protection and Enhancement of the Historic Environment	Development proposals affecting the historic environment will be required to demonstrate how they: a) Make a positive contribution to the character and distinctiveness of the historic environment of the local area by respecting historic plan form and reinforcing, conserving and/or enhancing special character taking into account factors including setting, historical context, urban grain and layout, plot sizes, the public realm, boundary treatment, building lines, roofscapes, trees, hedges, green space, landscaping, the mix of building types and uses, siting, scale, height, massing, appearance, traditional vernacular materials and finishes, and historic architectural detailing including windows and shop fronts; b) Ensure the significance of the heritage asset and its setting is understood and used at an early stage to inform development proposals in order to avoid or minimise harm, ensuring that heritage is at the heart of place-making; c) Have considered, and positively addressed the cumulative impact of incremental change from development on the significance of heritage assets; d) Preserve, and ensure clear legibility of and hierarchy of, locally distinctive vernacular building forms / groups of traditional vernacular buildings and their settings, features, fabric and materials whether within urban or rural areas or within historic farmstead complexes; e) Have identified and fully incorporated opportunities to better reveal the significance of the historic environment, through protecting the setting of settlements, important views between historic settlements and across the landscape; f) Ensure that the impact of traffic, parking or other environmental matters such as lighting and noise are considered at an early stage to avoid harm to the historic environment; g) Reflect the current good practice advice and research produced by Historic England; and h) Ensure that appropriate archaeological research and investigation (including above ground archaeology, such as buildings) is undertaken at an early stage to understand significance and inform the design process.	Policy HE1 is not associated with LSEs on Habitats sites. Policy HE1 protects and enhances the character and distinctiveness of Wealden's historic environment. This includes heritage assets, settings and landscapes. However, the protection of these assets has no relevance to Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy HE1 is screened out from further appraisal in the Appropriate Assessment.
Policy HE2: Heritage Assets	Proposals that seek to safeguard, conserve and enhance the significance of heritage assets (including non-designated heritage assets), their historic function and their setting, making a positive contribution to local character and distinctiveness will be supported. <u>Heritage Statement</u> Any development affecting a heritage asset (both designated and non-designated) must be informed by an understanding of significance. Where a development would affect a heritage asset and/or its setting, and /or its setting must demonstrate sufficient understanding of the significance of the heritage asset and / or its setting through the provision of a heritage statement which provides detail proportionate to the importance of the heritage asset. The heritage statement must demonstrate how this understanding of significance has informed the principles of the proposal and the impact on the heritage asset and why the works proposed are desirable or necessary. As a minimum, the historic environment record should be consulted in order to inform the heritage statement and the heritage assets assessed using the appropriate expertise where necessary. <u>Setting views to and from Heritage</u> Assets Setting and views to and from heritage assets can form an important and integral part of their significance and development must be informed by an understanding of setting in accordance with current Historic England good practice advice including a consideration of where change may better reveal significance and where views are important and should be respected ad protected.	Policy HE2 is not associated with LSEs on Habitats sites. Policy HE2 aims at the safeguarding, conservation and enhancement of heritage assets. However, the protection of heritage assets has no relevance for Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy HE2 is screened out from further appraisal in the Appropriate Assessment.

	The Council will support proposals that retain and enhance the setting of heritage assets subject to other policies in the Local Plan. Development that would demonstrably harm the significance of the heritage asset through development within its setting will normally be resisted. Change of use of Heritage Assets The change of use of heritage assets, including Listed Buildings and buildings in Conservation Areas, will only be permitted where the proposed use is considered to be the optimum viable use that is compatible with the significance of the heritage asset, its features and setting and will secure the long-term sustainable future of the heritage asset as well as its conservation and enhancement. Development affecting a heritage asset should not compromise future restoration opportunities. Energy efficiency and Sustainability of Heritage Assets Proposals affecting heritage assets that seek to install energy efficiency improvements or improve environmental sustainability will be supported where it can be demonstrated that the proposed measures take a 'whole building approach' and are suitable for the asset, and informed by an understanding of their specific performance, including its construction and materials. The suitability of improvements will need to be weighed against the significance of the asset and / or its setting, or any features of special architectural / heritage interest that may be harmed. Loss of heritage Assets There is a general presumption in favour of the preservation of heritage assets. Where the loss of a heritage asset is proposed, for example partial or complete demolition of a Listed Building or key unlisted buildings within a Conservation Area (either as identified in the Conservation Area Appraisal or as arises in the planning process), or an identified non-designated heritage asset, consent or permission will only be granted where: a. There is clear justification and evidence that all reasonable efforts have been made to sustain the existing use and find alternative uses. Evidence must include (as applicable) a structural report, evidence of redundancy, attempts to market the building to a new user over an 18 month period and a viability report. b. Any replacement buildings are of a sufficient quality to make the same or an enhanced contribution to the character or appearance of the area; c. There is robust evidence that the development will be progressed in a timely manner following demolition. This may be subject to a legal agreement. The Council will expect the applicant to fully meet the requirements set out in the NPPF, having regard to the significance of the heritage asset affected.	

	Where a proposal would result in the partial or total loss of a heritage asset or its setting, the applicant will be required to secure a programme of recording and analysis of that asset and archaeological excavation where relevant and ensure that the information is recorded to an appropriate standard and submitted to the East Sussex Historic Environment Record. <u>Designated Heritage Assets</u> Proposals that result in any harm to, or loss of significance of a designated heritage asset or its setting will require clear and convincing justification to demonstrate that the harm or loss proposed will be outweighed by the public benefits of the proposal. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, it will only be supported where it can be demonstrated that there are heritage benefits and that the harm can be weighed against the public benefits including securing the optimum viable use of the heritage asset. Substantial harm to, or loss of significance of a designated heritage asset will only be permitted in exceptional circumstances. Where substantial harm to a designated heritage asset or its setting cannot be avoided, consent or permission will only be granted where it can be demonstrated that the substantial harm is necessary to achieve substantial public benefits that outweigh that harm and: a) The applicant has made every effort to avoid and mitigate the extent of harm to the significance of the designated heritage asset or its setting; b) That the works proposed are the minimum required to secure the designated heritage asset in the long-term and represent the optimum viable use; c) The asset features that contribute to its heritage significance and interest are retained; and d) Materials used for alterations, replacement features and repairs are consistent with those originally used or typical of the character of the local area and are compatible with/ in the interests of the long-term preservation of the heritage asset. <u>Non-designated heritage assets</u> Proposals will be supported where a positive commitment is made to retain a non- designated heritage asset and its architectural and design features are considered	

	positively and retained. Due regard will be required to the developments impact on the asset's significance and its conservation.	
Policy HE3: Conservation Areas	Proposals within or affecting the setting of a Conservation Area will only be permitted where they: i. preserve or enhance the special architectural, historic character or appearance of a designated conservation area; ii. taking account of and responding to the relevant conservation area character appraisal and future management strategy when considering the design, scale and density of development; iii. involve restoring original details, historic fabric or specific features of interest including retaining trees, walls and fences and other features that make a positive contribution to the character and appearance of a Conservation Area; and iv. use building materials and finishes that respect the area. Subject to other policies in the Local Plan, buildings that make a negative or neutral contribution to a Conservation Area may be replaced or refurbished where this will result in a high-quality design and an enhancement to the character and appearance of the Conservation Area including replacement of shopfronts of inappropriate/poor design. Inappropriate alterations to unlisted buildings that make a positive contribution to a Conservation Area will be resisted.	Policy HE3 is not associated with LSEs on Habitats sites. Policy HE3 prevents proposals within or affecting Conservation Areas, unless a range of conditions are fulfilled. However, the protection of Conservation Areas has no bearing on Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy HE3 is screened out from further appraisal in the Appropriate Assessment.
Policy HE4: Enabling Development	Enabling development that would ordinarily conflict with other planning policies, but which would secure the future conservation of a heritage asset, will be supported only where the benefit would outweigh the harm of departing from the development plan or from national planning policies. Proposals for enabling development must demonstrate that: a) There is clear justification and evidence that there are no alternative ways of achieving the same outcome for the heritage asset including through sources of public and private investment; b) The enabling development would not materially harm the significance of the heritage asset or its setting; c) The enabling development is required to solve the conservation requirements of the heritage asset and is proportionate to the 'conservation deficit'; and d) The enabling development meets the requirements set out in Historic England Guidance and is accompanied by a costed conservation management plan, secured under a S106 Planning Obligation.	Policy HE4 is not associated with LSEs on Habitats sites. Policy HE4 is a development management policy for proposals affecting heritage assets. However, this has no relevance for Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy HE4 is screened out from further appraisal in the Appropriate Assessment.
Policy HE5: Historic Parks and Gardens	Development proposals affecting Historic Parks and Gardens on the national register or of local significance will be supported where they: a) Maintain, conserve or enhance the special historic interest, significance, character and appearance and design and layout of these landscapes; b) Conserve and enhance the setting of these landscapes including significant views to and from the park or garden; c) Take opportunities to restore original features and increase public access where appropriate; Proposals affecting Registered Parks and Gardens, must be able to demonstrate that any harm can be outweighed by public benefits commensurate to the level of harm arising.	Policy HE5 is not associated with LSEs on Habitats sites. Policy HE5 stipulates that development proposals affecting historic parks and gardens should preserve their significance, appearance and design. Maintaining the integrity of local greenspaces is important in enabling residents to visit outdoor spaces away from more sensitive Habitats sites. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy HE5 is screened out from further appraisal in the Appropriate Assessment.

<table>
<tr><td></td><td>Where proposals affect non designated Historic Parks and Gardens consideration will be given to the significance of the asset, the extent of impact on its significance, as well as the scale of any harm or loss to the asset as balanced against the public benefits that may result from the development proposal.</td><td></td></tr>
<tr><td>Policy HE6: Archaeology</td><td>Development proposals that would result in substantial harm to Scheduled Monuments and other important archaeological sites, including their setting, will not be permitted unless there are exceptional circumstances.

Where it is considered that a development could either directly or indirectly impact on a heritage asset with archaeological interest, development will only be permitted where it can be demonstrated that the proposal will not be harmful to the archaeological interest (significance) of the heritage asset or its setting. This includes direct impacts on designated sites e.g. Scheduled Monuments, indirect impacts on the setting of designated sites and impacts on sites of archaeological interest.

In some cases, where there is potential for impacts to heritage assets with archaeological interest, permission may be granted subject to a condition that no development shall take place until the developer has secured the implementation of a programme of archaeological work in accordance with a Written Scheme of Investigation. The written scheme of Investigation will be subject to approval by the local planning authority and should follow the Sussex Archaeological Standards, ESCC 2019, (or subsequent replacement).

Subject to other policies in the Local Plan, development proposals will be considered favourably where they:

1. Preserve, protect and / or enhance archaeological sites or remnants of such sites in situ unless the Written Scheme of Investigation shows that the preservation of archaeological remains in situ is not justified.

2. Maximise opportunities to conserve, enhance and improve the accessibility and interpretation of archaeological sites, remains or features.

Where this is not possible or justified to preserve in situ, developers will be required to record any heritage assets to be lost (wholly or in part) by a suitable and approved archaeological body and in a manner proportionate to their importance and possible impact. This information must be submitted to the East Sussex Historical Environment Record including making this evidence (and any archive generated) publicly accessible. Developers will also be required to make satisfactory provision for the conservation and storage of any artefacts. Planning conditions/ a planning obligation may be used in order to secure these requirements.</td><td>Policy HE6 is not associated with LSEs on Habitats sites.

Policy HE6 protects Scheduled Monuments and other important archaeological sites from development proposals. However, the protection of archaeological features has no relevance to Habitats sites.

The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present.

Overall, Policy HE6 is screened out from further appraisal in the Appropriate Assessment.</td></tr>
<tr><td colspan="3">Chapter 8: Housing</td></tr>
<tr><td>Policy HO1: Housing Mix</td><td>New housing developments, including affordable housing, will be expected to provide for a mix of dwelling size, type, price and tenure that meets the identified housing needs of the local area.

For all new development schemes for housing of at least 10 (net) or more dwellings, the Council expects the proposed housing scheme to maximise its potential contribution towards meeting the identified housing mix for market as set out below:

<table><tr><td></td><td>1-bedroom</td><td>2-bedrooms</td><td>3-bedrooms</td><td>4+ bedrooms</td></tr><tr><td>Market</td><td>5%</td><td>30%</td><td>40%</td><td>25%</td></tr></table></td><td>Policy HO1 is not associated with LSEs on Habitats sites.

Policy HO1 addresses the housing mix to be delivered in new housing developments, including the mix of bedroom sizes at market or affordable rates. However, the policy does not allocate a quantum or location of housing.

Overall, Policy HO1 is screened out from further appraisal in the Appropriate Assessment.</td></tr>
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<td></td>
<td>Affordable housing (rented) on large mixed tenure sites of at least 50 (net) dwellings (market and affordable units), including strategic allocations unless otherwise stated in the Local Plan, should seek to provide the following mix of bedroom sizes:

<table>
<tr><td></td><td>1-bedroom</td><td>2-bedrooms</td><td>3-bedrooms</td><td>4+ bedrooms</td></tr>
<tr><td>Affordable housing (rented)</td><td>40%</td><td>30%</td><td>25%</td><td>5%</td></tr>
<tr><td>Affordable housing (ownership)</td><td>20%</td><td>40%</td><td>30%</td><td>10%</td></tr>
</table>

On sites smaller than 50 dwellings (total - net), the preference will continue to be for smaller affordable dwellings (rented or home ownership) of 3 bedrooms or less, unless otherwise specified by the Local Housing Authority through the planning application process, following a review of its housing register.

For both market and affordable homes, the housing mix of new developments should have regard to the Council’s latest evidence base. However, other factors may be considered for the housing mix of specific schemes where such other factors are relevant. Th erefore, the housing mix of new residential development (including mixed use schemes), where not covered by other strategic allocation policies within this local plan, will be considered against the following criteria as relevant to the scheme:

• the established character and density of the area the proposal development is situated in (as evidenced in the Council’s Urban Capacity and Density Study);
• the viability of the scheme;
• site specific constraints of the site associated with either brownfield land or conversions particularly; and
• locally and robustly prepared evidence on housing mix, such as ‘Made’ or referendum-stage Neighbourhood Plan or a local (parish) housing needs assessment.

If the proposed residential development fails to take opportunities to deliver a residential development that reflects the housing mix specified above, subject to the criteria above, then the residential scheme will not be supported.

For market homes, the Council will also consider the size of new homes proposed to ensure that smaller units (1-3 bedroom homes) are not capable of further sub-division. Exceptions will only apply when a scheme or unit is designed to meet the needs of a designate heritage interest.</td>
<td></td>
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<tr>
<td>Policy HO2: Density</td>
<td>New housing developments must make the most effective use of land and seek to optimise the use of land and potential of the site.

The density of a development should be informed by the following:</td>
<td>Policy HO2 is not associated with LSEs on Habitats sites.

Policy HO2 addresses the density of housing developments to be delivered across Wealden District. For example, developments should make the most effective use of land by accommodating an appropriate amount of housing. Generally, this is a positive approach because it is likely to reduce the number of greenfield sites that will be lost to development.</td>
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</table>

	a. the capacity of the site and the need to use land effectively; b. the need to achieve high quality design that respects local character, including consideration of the Council's latest Urban Capacity and Density Study; c. local circumstances and site constraints, including the required housing mix, the need to protect or enhance the local environment (including woodland), topography, heritage assets, as well as any important landscape, habitats and/or townscape features; and d. the site's (or for strategic schemes, the relevant part of the site's) current and future level of accessibility to local services and facilities by walking, cycling and public transport. Sites that have been allocated within this Local Plan will have a specific density requirement. Given the size, function and locations of strategic allocations, it may be more appropriate for these sites to create a new character rather than trying to reflect or scale up the existing local character.	Furthermore, the policy does not allocate a quantum or location of housing, meaning that there are no linking impact pathways to Habitats sites. Overall, Policy HO2 is screened out from further appraisal in the Appropriate Assessment.
Strategic Policy HO3: Brownfield Land	Housing developments must make the most effective use of land and seek to optimise the use of land. The development of brownfield land for housing will be supported within development boundaries of settlements defined within the 'settlement hierarchy' as sustainable, providing that the site is readily accessible by means of public footpath and in reasonable distance to that settlement.	Policy HO3 is not associated with LSEs on Habitats sites. Policy HO3 provides strategic direction for housing developments to be delivered across Wealden District. Furthermore, the policy does not allocate a quantum or location of housing, meaning that there are no linking impact pathways to Habitats sites. Overall, Policy HO3 is screened out from further appraisal in the Appropriate Assessment.
Strategic Policy HO4: Small and Medium Sized Housing Sites	<u>Small and Medium Sized Sites</u> There are clear benefits of providing well-designed new homes on small and medium sized sites, up to 1 hectare of land, providing it meets the other relevant requirements of this Local Plan. Small and medium sized sites (under one hectare) that provide the following housing mix and types will be supported, subject to other policies in this plan, where they provide: • a mix of smaller homes of 1-, 2- and 3-bedrooms; • self-build and custom build homes; • affordable housing; and • specialist accommodation.	Policy HO4 is not associated with LSEs on Habitats sites. Policy HO4 provides strategic direction for the size of development sites to be delivered across Wealden District. The policy does not allocate a quantum or location of housing, meaning that there are no linking impact pathways to Habitats sites. Overall, Policy HO4 is screened out from further appraisal in the Appropriate Assessment.
Policy HO5: Self-Build and Custom Housebuilding	The Council will support self-build and custom housebuilding schemes where this complies with all other relevant policy requirements in this Local Plan. On sites of 20 dwellings (gross) or more, the provision of fully serviced plots for self-build and custom housebuilding should be made on site. At least 5% of the total dwellings should be made available for self-build and custom build plots, where this will not result in over provision of this type of housing when considering the Council's supply / demand evidence. The onus will continue to be with the	Policy HO5 is not associated with LSEs on Habitats sites. Policy HO5 provides direction for the development of self-build and custom housebuilding schemes. The policy does not allocate a quantum or location of housing, meaning that there are no linking impact pathways to Habitats sites. Overall, Policy HO5 is screened out from further appraisal in the Appropriate Assessment.

	applicant to demonstrate that the self-build and custom-build plots are not required within the district based on the evidence on need for self-build and custom build plots within the plan period. In terms of housing mix and size, the Council will support applicants for self-build and custom housebuilding in delivering new affordable (home ownership) and market homes in line with Policy HO1: Housing Type and Mix of this Local Plan. The Council will also strongly support self-build and custom housebuilding schemes that provide affordable homes and variation within the housing market, particularly when delivering smaller homes of 1-, 2- and 3- bedrooms including sites under the threshold of 10 units. A design code, prepared by the developer and agreed with the District Council, will need to be followed for each plot and individual plot passports will also be required. Where serviced plot(s) for self-build and custom-build housing have been sought as part of a strategic allocation within the Local Plan, or on sites of 20 dwellings (gross) or more, those plots must be prominently marketed for sale to self or custom builders for at least 12 months (or another period of time if mutually agreed between the two parties), at a reasonable price (this may be independently assessed through the Council) and if not sold, the plot(s) can return to the developer to be constructed as open market housing or in line with the terms set in a specific legal agreement.	
Policy HO6: Houses in Multiple Occupancy (HMOs) and Subdivision of Existing Dwellings	<u>Houses in Multiple Occupancy (HMO)</u> Proposals for the development of, and change of use of an existing property to a House in Multiple Occupation (HMOs) that requires planning permission will normally be permitted, provided that the development: a. includes satisfactory storage areas for refuse and recycling, cycle storage, a suitable vehicular access and adequate car parking spaces on site; b. is in keeping with the character of the locality, having regard to the appearance and general design of the original building and surrounding area; and c. demonstrates that the residential amenity of existing residents and future occupiers has been considered in relation to privacy, noise, light, outlook and usable outdoor amenity space and would not result in harmful visual amenity impact on existing residents and/or the surrounding area due to the construction of physical structures associated with the proposal. <u>Subdivision of Existing Dwellings</u> Outside of development boundaries, as defined on the Policies Map, the conversion and subdivision of larger residential property into smaller dwelling units, would be supported provided it meets all of the criteria above, and provided that the development: d. does not involve the creation of a large number of dwellings, with associated increases in activity, that would detrimentally harm the rural character of the area; and	Policy HO6 is not associated with LSEs on Habitats sites. Policy HO6 provides development guidance. The policy does not allocate a quantum or location of housing, meaning that there are no linking impact pathways to Habitats sites. Overall, Policy HO6 is screened out from further appraisal in the Appropriate Assessment.

	e. does not require a significant extension or alteration to the existing residential property, in order to maintain the visual integrity and character of the building.	
Policy HO7: Rural Exception Sites to meet Local Housing Need	Proposals will be supported for housing that meets local needs within or adjoining rural settlements (i.e. settlements that are defined as types 4, 5 and 6 in the settlement hierarchy) providing all of the below criteria is met. a. The need for affordable housing is clearly evidenced in an up-to-date and robust local housing needs survey that demonstrates that there is an imperative need for affordable housing; b. The size, type, tenure, mix and price of the affordable dwellings reflects the required local housing need. The development is well designed and would relate well to the existing physical form of the settlement; c. The development needs to be reasonably well located in relation to an existing settlement and provide appropriate footpaths to ensure that safe access for all can be achieved to local services and public transport; d. The development would not result in any adverse impacts on the character of the area, heritage, landscape or the amenity of adjoining properties for the lifetime of the development; e. Where market housing is deemed to be required to deliver affordable housing, then the market housing should be comparable in design to the affordable housing proposed on site in terms of its scale and the number of bedrooms. In all cases, planning permission will be subject to a legal agreement to ensure that the affordable housing accommodation remains available to meet local housing needs in perpetuity. Proposals which promote market housing will not be supported unless it is verified by an independent financial appraisal that market housing is required to deliver the affordable element of the scheme. Where a viability case is justified, the Council will accept the minimum enabling amount of market housing only to ensure that affordable homes is the primary use. This will be subject to an independent assessment by the Council's appointed consultant, of which, the costs will be paid for by the applicant. Market housing will be required to demonstrate that it meets the parishes local market housing need.	Policy HO7 is not associated with LSEs on Habitats sites. Policy HO7 provides development guidance. The policy does not allocate a quantum or location of housing, meaning that there are no linking impact pathways to Habitats sites. Overall, Policy HO7 is screened out from further appraisal in the Appropriate Assessment.
Strategic Policy HO8: Affordable Housing	<u>Affordable housing requirement</u> To meet the district's needs for affordable housing, development proposals of 10 (or more units or sites of 0.5 hectares or more) or proposals for 6 or more units within the High Weald Area of Outstanding Natural Beauty will be required to provide on-site affordable housing. Affordable housing will be expected to be provided at a level of 35% of the total number of dwellings. The application of this policy relates to use class C3 including permanent residential caravan parks and C2 self-contained units. Financial contributions will be sought in lieu of on-site affordable housing on permanent residential caravan parks and for proposals of less than 10 homes (net) in the High Weald AONB. In some instances, sites allocated in this Local Plan, may specify a different affordable housing target having regard to the findings of the associated viability assessment and site-specific considerations. Where a proposal comes forward with an affordable housing contribution higher than that required under the criterion above, the Council will consider this on a case-by-case basis and will only seek to support schemes that deliver mixed and balanced communities, as well	Policy HO8 is not associated with LSEs on Habitats sites. Policy HO8 specifies the delivery of affordable housing across Wealden District. For example, it sets out the proportion of affordable homes to be delivered on development sites of different sizes. The policy also provides guidance on the design of affordable homes. However, affordable housing provision has no relevance for Habitats sites. Furthermore, the policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO8 is screened out from further appraisal in the Appropriate Assessment.

	as provide sufficient infrastructure contributions and/or on-site infrastructure necessary to make the development acceptable in planning terms. If a development site is sub-divided to create two or more separate development schemes, one or more of which falls below the relevant affordable housing threshold, the Council will require an appropriate level of affordable housing to reflect the provision that would have been achieved on site as a whole, had it come forward as a single scheme. <u>Tenure</u> Affordable housing provision should incorporate a mix of tenures. The Council will expect a tenure mix of 40% affordable rented, 35% social rented and 25% through other affordable routes to home ownership, including First Homes, shared ownership and other types of intermediate accommodation. In the case where First Homes are provided, at least a discount of 30% will be expected to ensure that the actual housing cost is genuinely affordable for first time buyers within Wealden. <u>Exceptional circumstances</u> There may be exceptional circumstances where the provision of on-site affordable housing is not viable or desirable. The Council considers that the following issues may represent exceptional circumstances, where the applicant is unable to comply with this policy: • The developer has provided written evidence that no Council Approved Registered Provider will take the units, and this has been demonstrated to the satisfaction of the Council that this is the case; and/or • It is demonstrated that there is no realistic prospect of providing affordable housing by another means, such as the District Council; and/or • It can be demonstrated that the provision of the policy-compliant level of affordable housing would make the development unviable (see below). Where it can be proven that the affordable housing requirement cannot be achieved, due to economic viability, there will be flexibility in meeting stated targets. It will be the responsibility of the applicant to demonstrate that the requirements of the policy cannot be met, and that the closest alternative target that can be achieved is provided taking into account viability and need in agreement with the Local Planning Authority. The alternative target should initially consider a change in tenure mix for rented accommodation before considering reducing the overall provision on site. If provision is not shown to be viable, then serviced plots for affordable housing could be provided, should this be acceptable to the Council. If this is not viable or considered appropriate by the Council, a commuted sum in lieu of on-site delivery will be required. This will be subject to independent assessment by the Council's appointed consultant, of which, the costs will be paid for by the applicant. <u>Affordable Housing Design</u> The design of all new affordable dwellings shall be such that the quality and appearance of the homes (including the site layout) are not distinguishable by their tenure type from market housing. Any new housing scheme should make use of good quality materials and be	

	designed in such a way as to reduce ongoing management, maintenance and repair costs. Such proposals should be designed to ensure that service charges to any affordable housing are kept relatively low. Affordable housing should be provided in small clusters throughout the development scheme to ensure the creation of mixed and balanced communities. <u>Community Land Trusts, Co-Housing and Almhouses</u> The Council supports CLTs, Co-Housing and Almhouse schemes that provide affordable housing subject to other policies within this Local Plan.	
Policy HO9: Gypsy, Traveller and Travelling Showpeople – Site Criteria	The following criteria will be taken into account when determining planning applications for new or extended permanent and temporary sites for Gypsies, Travellers and Travelling Showpeople: a. That the site or extension satisfies a clearly defined need, as evidenced by the GTAA for Wealden District, and/or the best available evidence of the applicant to demonstrate both their ethnicity and 'cultural need' for the accommodation; b. That the site is well related to an existing sustainable settlement with local services and facilities, particularly shops, public transport provision, primary health care and schools; c. That the proposal has a safe and satisfactory vehicular and pedestrian access to the surrounding principal highway network; d. That the site will be large enough to enable vehicle movements within the site, including parking and circulation to take place, having regard to the number of pitches/plots provided on site. Each pitch/plot should also be able to accommodate 1 mobile home, 1 touring caravan and 2 car parking spaces; e. That the site avoids locations, which are adjacent to uses that are incompatible with residential uses, such as a refuse tip and sewage treatment works or where the land is unstable or significantly contaminated. f. That new sites or the enlargement of existing sites, are of a scale appropriate to their surroundings and would not individually or cumulatively dominate the nearest settlement, cause significant visual harm by way of its siting, or unduly impact local infrastructure or services in the area; g. In the cases of proposals in, or adjacent to the High Weald AONB or South Downs National Park, that the scale and the extent of development is limited, sensitively located and designed to avoid or minimise adverse impacts on these designated landscapes; h. That the site has existing or can be provided with power, drinking water, sewage treatment and waste disposal facilities. Foul drainage to a public sewer should be provided where possible; i. That the site avoids locations where there is a risk of flooding of all types, given the vulnerability of residential caravans. Where a site is identified as being at risk from surface water flooding, a site-specific flood risk assessment must be undertaken in line with Policy XX; j. Any proposal for a new or extended site will need to demonstrate sufficient space for the storage and maintenance of equipment/or the exercising of animals commensurate with any business needs of the site; k. The proposal must be well-screened by existing or new native vegetation that contains the site visually. The screening should be maintained permanently, and any planning application should be accompanied by a landscape management plan to ensure it remains in perpetuity. The use of high fences or walls to supplement the existing screening of the site will not be supported; and	Policy HO8 is not associated with LSEs on Habitats sites. Policy HO9 specifies design criteria and planning considerations for the development of sites for Gypsies, Travellers and Travelling Showpeople. However, the policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO9 is screened out from further appraisal in the Appropriate Assessment.

	l. That the proposal is well designed and laid out, ensuring that suitable amenity space is provided in terms of open space and soft landscaping, whilst limiting the use of hard standing and permanent structures. Where proposals for amenity blocks are provided, these must be of appropriate scale to the pitch/plot and well-designed.	
Policy HO10: Gypsy, Traveller and Travelling Showpeople – Safeguarding Sites	The existing provision of Gypsy, Traveller and Travelling Showpeople sites within the district will be safeguarded. Planning applications for the loss of such sites will need to be robustly justified. Proposals that would result in the loss of an authorised and permanent site for residential use for Gypsies, Travellers and Travelling Showpeople will not be permitted unless it can be clearly demonstrated that: i. The site is no longer suitable for such a use and suitable alternative provision is made for the use on a site of equal or better quality, with equal or better access to services; or ii. That there is no need for Gypsy, Traveller and Travelling Showpeople pitches/plots within the district. In order to demonstrate compliance with this policy, appropriate, detailed and robust evidence will be required to satisfy the criteria above. The Council may require the independent assessment of such evidence at the cost of the applicant. Where existing Gypsy, Traveller and Travelling Showpeople sites have a personal planning condition attached to the site occupier (and/or their relatives) who subsequently leave, every effort should be made to remove the planning condition to allow for the site to be used as a Gypsy, Traveller and Travelling Showpeople site in perpetuity. Planning conditions or legal obligations may be necessary to ensure that any replacement sites are provided. Any replacement sites should be available before the existing Gypsy, Traveller and Travelling Showpeople site is lost.	Policy HO10 is not associated with LSEs on Habitats sites. Policy HO10 protects against the loss of existing Gypsy, Traveller and Travelling Showpeople sites, unless certain conditions are fulfilled. However, the safeguarding of existing development has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO10 is screened out from further appraisal in the Appropriate Assessment.
Policy HO11: Specialist Housing for Older People	<u>New Specialist Housing for Older and Vulnerable People</u> The Council will support development proposals that deliver specialist housing for older people and vulnerable groups in the following circumstances: i. When the proposal is within a development boundary or is specified in strategic allocation policies contained within this Local Plan. In particular, support will be given to development proposals for older and vulnerable person's accommodation that meets Wealden's local needs as evidenced within the Council's latest Local Housing Needs Assessment. This will include support for schemes that incorporate housing with support (sheltered/retirement housing), housing units with care (i.e. extra care), specialist accommodation for those with disabilities and conventional care bedspaces where there is an identified need. ii. Whereby proposals include bungalows as part of a housing scheme, particularly where these provide smaller accommodation (1-, 2- and 3- bedrooms) and are provided as part of affordable accommodation for rent and shared ownership/equity.	Policy HO11 is not associated with LSEs on Habitats sites. Policy HO11 provides support for the delivery of specialist housing for older people across Wealden District, including sheltered / retirement housing, extra care and conventional care bedspaces. However, the support of specialist homes for older people has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO11 is screened out from further appraisal in the Appropriate Assessment.

	Retirement villages will be supported, where these are provided on strategic housing allocations or other suitable housing sites (that accords with other policies of this Local Plan), if this proposal meets the needs of older and vulnerable people specifically (including extra care or supported accommodation) The Council will particularly encourage schemes that meet identified local needs for those on lower incomes and provide affordable accommodation for rent and shared ownership/equity. <u>Amenity Space and Parking Provision</u> Housing for older and vulnerable people should incorporate amenity and garden space appropriate to the nature of the scheme (i.e. gardens will be appropriate to private dwellings, whilst communal amenity space will be appropriate to flatted C2 schemes for example). On-site parking will be required, for residents, staff and visitors, and should not harm the character of the area and should be delivered in line with the Council's Parking Standards. The design of scheme should include refuse storage, cycle storage and EV charging points in line with other policies of this Local Plan. <u>Loss of Older Persons' Accommodation and Specialist Housing</u> The loss of existing older persons' accommodation and specialist housing will not be supported unless it is demonstrated to the Council's satisfaction that: i. There is no longer an identified need for that type of accommodation within the district; or ii. Suitable alternative provision is, or will be, provided locally so that there is no net loss; or iii. The accommodation no longer meets minimum standards required to provide acceptable care and it is not practicable or viable to improve the specialist accommodation to those minimum standards or adapt to another form of alternative specialist accommodation. In order to demonstrate compliance, appropriate, detailed and robust evidence will be required to satisfy the criteria above. The Council may require the independent assessment of such evidence at the cost of the applicant.	
Policy HO12: Residential Accessibility Standards	All new development will be required to meet the accessibility standards set out in part M4(2) of the Building Regulations, unless it is built in line with M4(3) (a) wheelchair adaptable dwellings or M4(3) (b) wheelchair accessible dwellings of the Building Regulations 2015, or subsequent government standard. In addition, on developments of 20 (gross) or more dwellings, the Council will require a minimum of 10% of new affordable dwellings to be built to meet requirement M4(3) standards of the Building Regulations 2015, or subsequent government standard.	Policy HO12 is not associated with LSEs on Habitats sites. Policy HO12 provides support for the delivery of accessible and adaptable dwellings in line with findings of the Local Housing Needs Assessment. However, the delivery of adaptable / accessible homes has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO12 is screened out from further appraisal in the Appropriate Assessment.

	Only in circumstances where it can be robustly demonstrated by the applicant that it is not practicable or financially viable to deliver the provisions above or where the requirements are clearly incompatible with conserving and enhancing historic character, will new development be exempt from this policy requirement.	
Policy HO13: Internal Residential Space Standards for New Dwellings	All new residential development, including dwellings created through the subdivision of existing dwellings or conversion, shall comply with Nationally Described Space Standards, or any subsequent government standard.	Policy HO13 is not associated with LSEs on Habitats sites. Policy HO13 provides design guidance and planning conditions for new or converted dwellings. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO13 is screened out from further appraisal in the Appropriate Assessment.
Policy HO14: Rural Workers Accommodation	Proposals will be supported for a new temporary or permanent rural worker dwelling subject to the criteria below being met. Applicants will need to demonstrate the following: a. That there is a clearly established operational or functional business need for an additional worker to live permanently at the site; b. The need relates to a full-time worker or relates to their primary employment as a rural worker and does not relate to a part time requirement; c. That no suitable accommodation exists in the vicinity of the land based rural enterprise (sale/rent) or could be made available for the rural worker using existing buildings or the conversion of existing buildings on the site; d. That the agricultural, forestry or other land based rural enterprise has been established for either: • a minimum three-year period (being profitable for at least one of them) and is likely to remain financially viable for the foreseeable future; or • where the business has not been operating for three years, it can demonstrate that it will be financially sound. e. The proposal does not provide a replacement dwelling that has been disposed of for market housing in recent years including the conversion of agricultural buildings to residential; f. The dwelling is appropriately located to satisfy the operational and functional needs of the agricultural, forestry or other land based rural enterprise, is located near to existing buildings/dwellings and is no larger than that required to provide for the accommodation needs of the rural worker and their immediate family, including any residential curtilage; and g. The proposal would not result in any adverse impacts on the character of the area, heritage, landscape or the amenity of adjoining properties for the lifetime of the development. Evidence submitted on financial viability will be subject to an independent assessment by the Council's appointed consultant, of which, the costs for the independent assessment will be paid for by the applicant. Permitted development rights will be removed for rural workers dwellings to ensure that the dwelling remains of a size commensurate to the needs of the business. <u>Temporary Rural Workers Dwellings</u>	Policy HO14 is not associated with LSEs on Habitats sites. Policy HO14 provides design guidance and planning conditions for rural workers accommodation. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO14 is screened out from further appraisal in the Appropriate Assessment.

	If a rural workers dwelling is essential to support either a new or existing rural enterprise or activity, it should for the first three years be provided by a caravan/mobile home or other temporary accommodation. Temporary accommodation will not be granted planning permission in locations that would not be suitable for a rural worker's dwelling. <u>Rural Workers Occupancy Condition</u> A rural workers dwelling will be restricted to remain available for meeting the accommodation needs of a rural / primary worker for as long as the need exists / permission is provided for or the widow or widower of such a person or any resident dependents are living within the property. This is to ensure that the dwelling remains commensurate to the needs of the agriculture, forestry or land based rural enterprise. The removal of an occupancy condition will only be permitted where it can be demonstrated to the satisfaction of the Council that: i. there is unlikely to be any need for such rural worker dwellings at the site or within the local area as demonstrated by an up-to-date assessment of the demand for rural worker dwellings; ii. It can be demonstrated that the agriculture, forestry or land based rural business is no longer financially viable; iii. Robust and comprehensive evidence has been provided to demonstrate that the property has been subject to continuous marketing for an 18-month period at either a rental or sale price that reflects the occupancy condition in place. Evidence submitted to the Council on the removal of an occupancy condition will be subject to an independent assessment by the Council's appointed consultant, of which, the costs for the independent assessment will be paid for by the applicant. Where the removal of a rural occupancy conditions does take place, planning conditions and/or Section 106 Planning Obligation will usually be imposed to require the dwelling to remain as affordable housing, with a new occupancy condition restricting the dwelling as affordable housing in perpetuity. The only exception to this, will be where: i. The applicant has provided written evidence that no Council Approved Registered Provider will take the unit, and this has been demonstrated to the satisfaction of the Council that this is the case; and ii. It is demonstrated that there is no other realistic prospect of another appropriate organisation taking on the unit, such as the District Council.	
Policy HO15: Conversion of Rural Buildings to a Residential Use.	The conversion of existing rural buildings in the countryside for residential uses (outside the development boundaries as defined on the Policies Map) will be supported where: a. The building is structurally sound and of a permanent and substantial construction capable of conversion without significant new build, extension or alteration. The Council will normally require this to be demonstrated through the submission of a structural survey as part of the planning application process b. It is demonstrated that every reasonable attempt has been made to secure a business, recreational or tourism use of the building in the first instance and the application is supported by a statement of the efforts which have been made to achieve	Policy HO15 is not associated with LSEs on Habitats sites. Policy HO15 provides design guidance and planning conditions for conversion of rural uildings to residential use. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO15 is screened out from further appraisal in the Appropriate Assessment.

	this. This should include details of active marketing at an appropriate value/rent and the details of any interest received (with no reasonable offers being refused) for a minimum of 18 months; c. The conversion of a rural building to a residential use shall not compromise the existing or future operation or management of the land for its principal rural use, or result in the need for further rural buildings as a result of the proposal; d. The proposal makes an efficient and viable use of a redundant or disused building, including the optimal viable use of a heritage asset where applicable; e. There is an enhancement to the immediate setting f. The residential use and associated activities do not detract from the area including landscape character and visual amenity of the immediate surroundings; g. The proposed conversion and alterations respect the character and appearance of the rural building, the immediate and surrounding landscape character and the significance and setting of heritage assets; and h. The residential curtilage of the dwelling shall be limited, only allowing for adequate space for parking/turning and outdoor amenity space only where appropriate. i. The building shall be worthy of retention for its historic character or its architectural value and makes a positive contribution to landscape character and/or the farmstead; j. The rural building is situated either in a sustainable location, or includes safe options to non-motorised transport modes to existing services and facilities of a nearby sustainable settlement; k. The rural building has not been 'recently constructedwith little or no us for this purpose, prior to the proposed conversion of the building to an alternative use being submitted to the local planning authority; l. It is demonstrated that the living conditions of future occupiers will not be harmed by proximity in relation to existing neighbouring uses, including farm activity, noise, and odours; m. The residential use and associated activities do not detract from the area including landscape character and visual amenity of the immediate surroundings; n. Any ancillary structures and garaging will be required to demonstrate that the additional space cannot be met from existing buildings in the immediate surrounds suitable of conversion. The design, scale and massing of the dwelling, including ancillary structures and landscaping, must show clear regard to the rural location, local traditional vernacular materials and the traditional layout of any historic farmstead to which it is located. The design o. must have regard to and reflect the hierarchy of buildings within the farmstead (where applicable) and not introduce inappropriate hard and soft landscaping and subdivision of a farmstead area, or inappropriate incursion into agricultural land, in the pursuit of providing any associated residential curtilage.	
Policy HO17: Park Homes and Residential Caravan Sites	Proposals for new parks homes/permanent residential caravan parks within development boundaries or small-scale extensions to existing park homes/permanent residential caravan parks to meet a district wide housing need will be supported provided that: a. the scale, design and layout of the proposed development relates well to the surrounding area and does not appear dominant in the landscape or to its nearest settlement; b. the proposal seeks to enhance local biodiversity and can demonstrate improvements to the environmental value of the site; c. the site is not located within Flood Zones 2 or 3, within an area with poor drainage or within an area of poor ground stability; d. the proposal includes on-site facilities and recreational provision of an appropriate scale;	Policy HO16 is not associated with LSEs on Habitats sites. Policy HO16 provides support for new park homes and permanent residential caravan parks provided that a range of conditions are met, including enhancements to local biodiversity. However, the general support of park homes and residential caravan sites has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO16 is screened out from further appraisal in the Appropriate Assessment.

	e. the proposal includes safe vehicular and pedestrian access, satisfactory storage areas for refuse and recycling and sufficient car parking spaces (including circulation); f. the location of the site will not have a detrimental impact on the surrounding highway network and in the case of extensions to existing parks homes/permanent residential caravan parks outside of development boundaries, these proposals can demonstrate good connectivity to a nearby sustainable settlement with access via public transport; and g. the proposal will not result in a unacceptable adverse impact on the amenities of neighbouring properties in terms of privacy, outlook, sunlight, noise, odour and disturbance.	
Policy HO17: Replacement Dwellings in the Countryside	The replacement of an existing dwelling in the countryside will be permitted subject to all of the below criteria being met: a. The existing individual dwelling benefits from a lawful residential use and this use has not been 'abandoned'; b. The existing dwelling cannot meet the needs of occupiers by way of extensions or alterations to the existing dwelling; c. The replacement dwelling is of a comparable size and scale to the original dwelling and is located within the footprint of, or as close as practical to the existing dwelling within the residential curtilage, unless an alternative position would result in clear landscape, heritage, access or local amenity benefits; d. The form, external appearance, height and massing of the replacement dwelling and any associated development and works, shall be no more visually obtrusive in the landscape than the original dwelling; e. The proposed replacement dwelling is designed to ensure it does not result in significant harm to the overall character and appearance of the area taking into account the surrounding landscape, heritage assets, built form and existing street scene; f. The proposed replacement dwelling can be suitable accessed and can provide sufficient parking and adequate private amenity space within the curtilage of the dwelling; and g. The proposal would not materially harm any neighbouring uses including the living conditions of nearby residents, particularly in relation to a loss of privacy or daylight. Where replacement dwellings are permitted, planning conditions may apply to: i. Remove permitted development rights where the replacement dwelling has increased its overall floorspace from the existing dwelling and where further increases may result in an unacceptable development as per the criteria above; and / or ii. Require the removal of the existing dwelling where an alternative location is proposed to prevent the development of isolated homes in the countryside.	Policy HO17 is not associated with LSEs on Habitats sites. Policy HO17 permits extensions and alterations to existing residential dwellings, outbuildings and annexes provided that a range of conditions are met. However, the general support of such developments has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO17 is screened out from further appraisal in the Appropriate Assessment.
Policy HO18: Extensions and Alterations to Existing Dwellings, Outbuildings and Annexes	Proposals for extensions and alterations to existing residential dwellings and for proposals for outbuildings and annexes within their curtilages will be permitted where: a. it is designed to respect the scale, form, proportions, materials, height and massing of the existing dwelling and its surrounding area; b. it is designed to be in keeping with the appearance and general design of the original dwelling;	Policy HO18 is not associated with LSEs on Habitats sites. Policy HO18 permits extensions and alterations to existing residential dwellings, outbuildings and annexes provided that a range of conditions are met. However, the general support of such developments has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO18 is screened out from further appraisal in the Appropriate Assessment.

	c. the design of the extension, alteration, outbuilding or annex leaves sufficient external private space for the occupiers of the dwelling, including a sufficient level of parking; d. in the case of extensions and alterations, they are physically and visually subservient to the building, including its roof form, taking into account its original form and the cumulative impacts of existing extensions on the property; e. in the case of subsequent extensions and alterations to converted rural buildings, this should not detract from the original form and character of the building; f. in the case of outbuildings, they respect and respond positively to the character, appearance and setting of the main dwelling within its plot and the surrounding area, through their siting, scale and massing, design and materials; and g. in the case of an annexe, the proposal should normally be physically attached to the dwelling and not lend itself to future subdivision to form a new dwelling. In cases where a detached annex is required, this annexe accommodation should be sited in close proximity to and have a clear functional relationship with the existing dwelling, with the applicant first considering existing buildings in the curtilage of the dwelling that are capable of conversion. Where an annexe is permitted, the Council will consider whether a planning condition or Section 106 Planning Obligation In cases where an extension, outbuilding and/or annex is permitted, particularly in rural locations, the Council will consider attaching a planning condition(s) to that approved planning permission to remove permitted development rights where it is considered that subsequent extension to the dwelling will adversely impact the character of the area, or the amenities of neighbouring occupiers.	
Policy HO19: Extensions to Residential Gardens	Extensions to the gardens of existing dwellings in the countryside will not be permitted unless the proposal: a. is modest in area and the change of use and associated domestic paraphernalia does not harm the rural character of the area; b. is a logical extension of the residential garden, in that it matches the existing pattern of surrounding residential development, or the presence of landscape features such as a hedgerow, watercourse or woodland; c. does not have a detrimental impact on the visual amenity or privacy of neighbouring dwellings; and d. does not have a detrimental impact on the rural character of the countryside. Where a proposal is located within or affects the setting of the High Weald AONB, or South Downs National Park, the proposal will also need to demonstrate that it is justifiable within the context of its national level of landscape protection, particularly in terms of visual amenity. Where an extension to a residential garden is permitted, the removal of permitted development rights for the erection of outbuildings and provision of hard surfaces may be applied.	Policy HO19 is not associated with LSEs on Habitats sites. Policy HO19 does not permit extensions to gardens of existing dwellings in the countryside unless a range of conditions are met. For example, such extensions should protect the landscape and visual amenity of the High Weal AONB and South Downs National Park. However, setting planning restrictions on garden extensions has no bearing on Habitats sites. The policy does not allocate a quantum or location of housing with potential linking impact pathways to Habitats sites. Overall, Policy HO19 is screened out from further appraisal in the Appropriate Assessment.
Chapter 8: Social and Physical Infrastructure		
Policy INF1: Infrastructure provision, delivery, and funding	New development will be required to consider the capacity of existing infrastructure and consider whether new or improved infrastructure will be required to support development. All types of infrastructure should be considered including whether the scale and location of existing infrastructure, services and facilities would be able to support the development proposal. Early engagement with infrastructure providers is expected.	Policy INF1 is not associated with LSEs on Habitats sites. Policy INF1 addresses the infrastructure needs for new developments. However, the policy does not allocate a quantum or location of housing or other development.

	Planning permission will only be granted where it can be demonstrated that there is, or will be, sufficient infrastructure capacity to support and meet all necessary infrastructure requirements arising from the proposal. The timing of infrastructure provision will need to be considered and agreed with the Council in liaison with infrastructure providers to ensure that infrastructure is delivered and is operational prior to, or alongside the development it is required to serve. For larger applications, the phasing of development may be appropriate. Where this is the case, the Council will use conditions or planning obligations to secure the phasing arrangement to ensure that infrastructure is delivered at the right phase/time. The delivery of relevant infrastructure will be secured either through direct provision or financial contributions (CIL and / or S106). Contributions towards infrastructure maintenance will also be secured as relevant. The provision of infrastructure facilities such as those relating to healthcare and education should be provided in locations that relate well to both existing and new development. They should also be located to relate with public transport services and walking and cycling routes. Infrastructure must be designed in a way to ensure accessibility for all. <u>Viability</u> In considering the importance of infrastructure and its role in creating and supporting sustainable communities, viability reasons for non-delivery will only be considered in exceptional circumstances. To demonstrate viability constraints the developer must provide a satisfactory viability assessment (open book) prior to the validation of the planning application in accordance with the terms agreed by the local planning authority. All costs associated with the development will be required to be clearly set out by the developer including any costs that were not anticipated. The assessment will be required to demonstrate how the value of planning obligations have been maximised alongside likely viability. The Council will use an independent consultant to verify the assessment and the costs associated with this will be funded by the developer. All viability assessments will be made publicly available. Where relevant, a clawback mechanism will be incorporated into any legal agreement to ensure that infrastructure can be provided should viability as set out in viability ssessments be better than originally anticipated. If full mitigation measures and contributions are not able to be delivered due to viability, the development will only be permitted where the benefits of the development outweigh the lack of full mitigation for its impacts, having regard to other material considerations.	Overall, Policy INF1 is screened out from further appraisal in the Appropriate Assessment.
Policy INF2: Sustainable transport and active travel	Working with partners, the Council will support proposals that will focus on: i. enabling an integrated and improved transport network; ii. reducing car journeys by encouraging and enabling active, inclusive, accessible and sustainable travel modes (walking, wheeling, cycling and public transport such as rail, bus, car sharing and car clubs); and iii. providing greater travel choices. Sustainability, patterns of movement, active travel, parking facilities and public transport connectivity (around 400m from most homes for major / strategic developments) are integral to the design of a scheme and the creation of high quality and healthy places. Transport design should be an integral and fundamental consideration from the start of the planning process, to ensure appropriate connectivity between people and places. New development will be supported where it:	Policy INF2 is not associated with LSEs on Habitats sites. Policy INF2 addresses the transport infrastructure needs for new developments. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF2 is screened out from further appraisal in the Appropriate Assessment.

	a. Is situated in sustainable locations with good access to schools, jobs, shops, and key services with travel to these facilitated by sustainable travel modes; b. Maintains, and where required, improves the existing transport network, ensuring that sufficient capacity is available to accommodate the development and that development will not result in a safety issue; c. Delivers attractive and healthy streets contributing to the creation of 20-minute neighbourhoods; d. Provides or contributes to the provision of, new and/or improved public e. transport infrastructure and services proportionate to the projected number of additional trips arising from the development and considering any cumulative impacts of other approved developments in the area; f. Delivers an improved and integrated active travel environment for walking, wheeling, and cycling as appropriate to the scale and nature of the development, with particular regard to convenient connections, safety and permeability, including provision of new routes / filling in gaps in connectivity; g. Retains and where relevant improves existing public rights of way, including improving local and strategic routes and links; h. Provides for an appropriate level of cycle, car parking and electric vehicle space allocations that takes into consideration the impact of development upon on-street parking and accords with East Sussex County Council standards / guidance; i. Provides a Transport Assessment, Transport Statement and Sustainable Travel Plan as relevant to the scale and nature of the development (in line with East Sussex County Council guidance). Where assessments are required, they must cover the extent of transport implications; and j. Provides suitable alternative transport schemes such as Car Clubs, Car Share Schemes and / or Bicycle/Scooter Share Schemes, where appropriate. In terms of design, development will be supported where: k. The nature and level of traffic can be accommodated without adversely impacting upon the safety, amenity or character of the surrounding area; l. Roads and junctions within the development, including those to be altered or added as a result of the development, are designed, and delivered in accordance with the appropriate highway guidance with particular emphasis on safety of all pedestrian and vehicle users; m. Suitable and safe vehicle access, turning and exit provision for service vehicles e.g. refuse vehicles, emergency service vehicles and deliveries can be made in a forward direction; n. The development provides a design and layout that will deliver and encourage slower driving speeds prioritising non-motorised travel modes as suitable to the scheme; Any highways improvements required will be secured by planning condition or a Section 106 planning obligation via a Section 278 agreement with ESCC.	
Policy INF3: Parking provision	All new development will be required to provide adequate and well-integrated car parking, taking account of the standards set out in the ESCC Guidance for Parking at New Residential Development (2017) and Non-Residential Development (or any subsequent replacement), which shall be the starting point for decision-taking on appropriate parking provision for new developments.	Policy INF3 is not associated with LSEs on Habitats sites. Policy INF3 addresses the parking provision needs for new developments. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF3 is screened out from further appraisal in the Appropriate Assessment.

	In considering new parking provision for all types of development, the applicant shall consider: a. The character of the local area; b. The proximity and availability of public transport provision; c. Highway safety and access to and from the development site; and d. The provision of facilities for shared transport schemes (i.e. Car Clubs); In considering new parking provision on residential development schemes, the applicant shall also take account of: e. The layout of the new residential development; f. The mix of dwellings in terms of the number of bedrooms and type; and g. Local car ownership levels. All new development shall also deliver an appropriate level of cycle (including E-bikes), car, disabled, and visitor parking including electric vehicle space allocations that takes into consideration the impact of development upon on-street parking.	
Policy INF4: Utilities	1. All development proposals should demonstrate that the infrastructure capacity for surface water disposal, water supply, wastewater treatment, gas, electricity and oil will be sufficient to meet the forecast demands arising from the development over its lifetime and that appropriate connections can be made to the development created. 2. All development proposals should ensure that the layout of the utilities is planned to allow future access to existing water supply, wastewater, gas, electricity and other utilities infrastructure for maintenance and upsizing/ upgrading purposes. 3. The utility network should be protected and development proposals that would compromise existing utilities infrastructure, or encroach on future connections for utilities, will be refused. Opportunities should be sought to safeguard the provision of utilities wherever possible. The Council will work with its utilities partners to ensure the necessary physical and environmental infrastructure is provided to support communities. Development that supports or provides carbon neutral utilities schemes that contributes to helping the	Policy INF4 is not associated with LSEs on Habitats sites. Policy INF4 addresses the utilities needs for new developments. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF4 is screened out from further appraisal in the Appropriate Assessment.

	Council meet its carbon neutral target will be particularly supported. Lastly, new development proposals must take into account the impact of overhead power lines on site and should wherever feasible, aim to provide power cables underground in order to protect residential amenity.	
Policy INF5: Safeguarding of Infrastructure	As defined on the Policies Map, development will not be permitted which would prejudice the reinstatement of the following railway lines: • Lewes to Uckfield; • Eridge to Tunbridge Wells; and • The Willingdon Chord (Polegate to Pevensey). As defined on the Policies Maps, development will also not be permitted which would compromise the delivery of: • an extension to the Arlington Reservoir; and • an offline A27 trunk road.	Policy INF5 is not associated with LSEs on Habitats sites. Policy INF5 addresses the desire to protect existing and known future infrastructure development plans. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF5 is screened out from further appraisal in the Appropriate Assessment.
Policy INF6: Digital and Communication Infrastructure	The Council supports the expansion and improvement of digital and communication infrastructure across the district, subject to other policies in this Local Plan. Applicants will be required to actively engage at the earliest opportunity with the Council to discuss deployment plans to minimise costs, time and uncertainty associated with the planning process for the deployment of fixed and mobile infrastructure. Applicants will be required to actively demonstrate that they have considered broadband and mobile connectivity within their proposals for new housing, employment and retail developments and will enable Fibre-to-the-Premises (FTTP) or where it is demonstrated that this is not possible, other satisfactory wireless solutions. All new dwellings, including those provided via building conversions must be designed and constructed in a way that enables them to meet or exceed the Government's Building Regulations relating to the provision of high speed FTTP infrastructure in the home or any subsequent national equivalent standard should the Building Regulations and/or national policy be reviewed in the future. Where FTTP is not possible, infrastructure for the FTTP in the future should be provided where this is practicable.	Policy INF6 is not associated with LSEs on Habitats sites. Policy INF6 addresses the desire to protect existing and known future infrastructure development plans. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF6 is screened out from further appraisal in the Appropriate Assessment.

	Existing Telecommunications Infrastructure Residential developments of ten or more units and all new employment generating development should demonstrate that there is sufficient mobile telecommunications coverage. **New Telecommunications Infrastructure** Telecommunications infrastructure proposals should demonstrate that they are required considering other sites available, considering the opportunity of mast sharing and using existing buildings or structures and that the installation exceeds the minimum required for the efficient operation of the network. All relevant proposals (including prior approvals) will need to demonstrate that: a) the proposal is the least environmentally harmful option; b) Pre-application consultation has taken place with the community, local groups and organisations who may be affected by the proposal; c) the cumulative exposure will not exceed the guidelines of the International Commission on Non-Ionising Radiation Protection (ICNIRP); d) the location and design of the proposed apparatus and associated structures will minimise any adverse visual impacts on visual amenity or the character and appearance of the surrounding area / host building; and e) The location and design will have no significant adverse impact on the historic environment, on sensitive sites including areas of ecological interest, areas of landscape importance or sensitive landscape areas.	
Policy INF7: Local Services and Community Facilities	<u>New and Additional Provision</u> Development proposals for the provision of new or improved local services and community facilities will be supported. The Council will work with developers and relevant organisations to ensure that appropriate local services and community facilities, including new provision and enhancements to existing facilities, or shared provision of facilities are provided in the most appropriate locations to facilitate the needs of development as well as those of existing communities. Development of new community facilities should:	Policy INF7 is not associated with LSEs on Habitats sites. Policy INF7 addresses the requirements for local services and community facilities. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF7 is screened out from further appraisal in the Appropriate Assessment.

	a. Be located within development boundaries, unless it can be demonstrated that the proposed location is the only suitable option and is well-related to the community it will serve; b. Be of an appropriate scale and intensity of use, without negatively impacting upon adjoining or nearby uses or the vitality or viability of existing facilities in the area; c. Be accessible to the community it serves by public transport, walking or cycling. d. Be designed for flexible use to encourage the sharing of facilities by different organisations and services, and to ensure adaptability if the demand for the facility changes; e. Be designed to ensure all potential users can access the services/ community facility; f. Provide accessible public toilets for community facility users and the public as appropriate, including suitable toilet facilities for childcare and disabled users; g. Provide adequate car parking including electric vehicle parking with charging points, to allow for the use of the facility including for those with disabilities; h. Seek to minimise light pollution; and i. Be designed in a way that will reduce the potential for crime and nuisance. New or enhanced local service or community provision will be delivered via a combination of on-site measures and / or through off-site financial contributions, secured through planning obligations. <u>Retention of Local Services and Community Facilities</u> Development proposals that will result in the loss or partial loss of local services and / or community facilities will be required to provide appropriate evidence to justify their loss and will not be supported unless: 1. It is no longer needed or viable and suitable alternative provision that is of a suitable size, scale, use and capacity would be developed nearby in a location that is accessible to the community the existing facility serves; 2. The partial loss contributes to the continuation of the existing local service or community use (should the existing use require less floorspace) and it can be demonstrated that the existing use would otherwise be unviable but can be retained by cross-subsidy; 3. A robust case can be demonstrated that the property has been vacant for at least a period of 18 months, and it can be demonstrated that there is no current or future need or demand for the local service or community facility, either as its current use or an alternative service/community use;	

	The approach set out in Policy EC8: The Retention of Sites in Economic or Tourism Uses and Community Facilities should also be applied. In the case of public facilities, proposals will not be supported unless the demand within the locality no longer exists and the building(s) is no longer suitable to accommodate the existing use and there are clear operational reasons for closing or moving the facility. In such cases where this is proven, it should be explored whether the site could reasonably be adapted to provide an alternative local service or community use prior to the consideration of any other uses. Proposals that would result in the loss of a local service or community facility, or features associated with them, that may undermine a sites viability such as, but not limited to car parks, gardens and function rooms, will be refused planning permission, unless there are exceptional circumstances for such a proposal to proceed and this meets all other policy provisions in this Local Plan. The Council may require the review of any submitted information by an independent consultant, and it would be expected that the applicant will cover the cost of this.	
Policy INF8: Open space, sports and recreation	1. The Council will seek to increase the availability and accessibility to high quality and high value open space, sports, and recreation provision by protecting and enhancing existing provision including ancillary facilities, improving the management of provision, as well as through the delivery of new open space, sports and recreation provision, including within sites allocated in this Local Plan. Protecting existing open space, sports and recreation provision 2. Existing open space, sports and recreation provision, including lapsed provision, will be protected and should not be built on unless: a. A robust assessment has been undertaken which has clearly shown the provision is surplus to requirements in relation to quantity, quality, and accessibility standards as relevant to its catchment area; or b. It is demonstrated that the loss resulting from the proposed development would be replaced by equivalent or better provision in terms of quantity and quality as well as being located in a suitable location, including with good accessibility. c. The development is for alternative sports and recreational provision at the site, the benefits of which clearly outweigh the loss of the current or former use. 3. Proposals will only be supported where alternative open space, sports and recreation provision does not adversely impact on other open space benefits or functions or can sufficiently mitigate any adverse impacts. 4. In addition to (1) and (2) above, proposals relating to sports provision or their associated facilities will only be supported where: d. The proposed development is for ancillary facilities that will support the principal use of the site as a playing field and does not affect the quantity and quality of existing playing pitches or otherwise adversely affect their use; and e. The proposed development affects only land incapable of forming part of a playing pitch and does not affect the use. 5. Proposals that would result in the loss of playing pitches will only be supported where the site has no special significance to the interests of sport to the satisfaction of both the Council and Sports England.	Policy INF8 is not associated with LSEs on Habitats sites. Policy INF8 addresses the requirements for open space, sports and recreation facilities. However, the policy does not allocate a quantum or location of housing or other development. Overall, Policy INF8 is screened out from further appraisal in the Appropriate Assessment.

	New or enhanced open space 6. Residential development* of 10 or more dwellings (net) will be required to provide either new and / or enhanced publicly accessible open space, sports, and recreation provision to meet the needs of their occupants. Provision should be provided based on the size of the dwellings proposed and in accordance with Table XX in appendix XXX. 7. The expectation is for development to deliver provision on-site in accordance with table XX in appendix XX unless exceptional circumstances where off-site provision would better facilitate the needs of the development or where provision may not be suitable onsite due to either the nature / size of the site or specific constraints. 8. Where off-site provision is required developer contributions for the enhancement and maintenance of existing open space will be sought with contributions secured through a S106 legal agreement. On-site provision for new open space 9. The type of on-site open space provision to be delivered will be discussed with the applicant at the pre-application stage and will be dependent on the suitability of the site to accommodate different types of open space provision as well as the quantity and type of provision needed in the local area. Proposals should have regard to the findings of the Wealden Open Space Report (or any future updated studies) to inform the provision required, as well as consider any updates to provision that may change requirements. In all cases, the starting point for the consideration of provision should be based on the Council's open space evidence base. Sports provision (including indoor sports facilities, playing pitches and ancillary facilities) Proposals for sports provision will be supported where they meet the needs of the local community and/or unmet need within the district and where they meet the requirements of other relevant policies in the development plan. Residential development* of 10 or more dwellings will be required to contribute to the provision or enhancement of sports provision (in addition to open space provision) to meet the needs and demand of its future occupants. Where shortfalls are identified but do not require the provision of new facilities or provision on site, the Council will seek developer contributions for the enhancement and maintenance of existing sports provision secured through a S106 legal agreement. The requirement for new or enhanced sports provision will be informed by the Playing Pitch and Outdoor Sport Strategy and Playing Pitch Action Plan and the Indoor Sports facilities Assessment (2022) (or any updates to this) and the distance and capacity of existing facilities. The scale of development and the site-specific context will inform whether provision should be made on site or through contributions towards existing sites. New provision will need to include appropriate ancillary facilities and parking.	

	Where new schools are provided in major new residential developments, they should be designed to facilitate community access, with opportunities for meeting the community's outdoor sports needs explored at the outset to maximise the potential for facility provision to be made within the developments. <u>Design of open space, sports and recreation provision</u> In accordance with other policies in this plan and in particular Policy DE3, the provision and design of new open space, sports and recreation provision will be expected to: • Meet the required open space standards set out in appendix XX; • Provide safe facilities sited in a location that can benefit both new and existing residents; • provide accessible and inclusive facilities for all potential users that benefit healthy living; • be sustainably located, accessible by a range of transport modes including active travel and public transport; • maximise opportunities to deliver benefits for nature, support efforts to address climate change and strengthen the existing network of multi-functional green space; • provide adequate funding towards the long-term maintenance of new provision. A management plan for the on-site provision will also be required as relevant to the proposal; and • provide sufficient developer contributions towards the long-term maintenance of new provision On-site provision will be required to be completed prior to the first occupation of the development. Developer contributions towards maintenance of the site will be secured through a section 106 agreement. <u>Consultation</u> Where relevant consultation on the proposal for open space, sports and recreation provision will be required with the parish/town council and / or local communities. Advice on consultation recommendations will be provided at the pre-application stage. In relation to sports provision consultation with Sport England will be required also. *This includes both market and affordable housing, older persons housing (where occupants are active) and permanent mobile homes.	
Chapter 10: Design and Quality of Place		

Strategic Policy DE1: Achieving well-designed and high-quality places	All development must be beautiful, achieve a high quality of architectural design and contribute positively to user experience, sustainability and a sense of place. Innovative and contemporary architecture will be supported where it is of high-quality design, responds to its context in the local area and does not negatively impact on the existing character, particularly where it delivers overall design excellence. Design must be considered at the earliest opportunity having regard to national and local design guidance, relevant design guides and design codes. Development proposals will be supported where they: <u>Context and identity</u> a. Are locally distinctive, relate well to, and positively contribute to the character and topography of the surrounding built and natural environment (including its overall setting, townscape features, landscape, skyline, heritage, important views and green corridors). Proposals should create a positive sense of place by responding to the features of the site and the surrounding context; b. Relate sympathetically to the local landscape, retaining existing important landscape, historic and natural features and incorporating high quality landscape design, mitigating against any detrimental harm to the landscape and / or its features. This includes (where applicable) providing an appropriately sized and designed landscape buffer to the open countryside. As relevant to the site, the use of native hedges comprising native species is preferable to man-made boundary treatments; c. Provide a strong, attractive and positive identity contributing to health and well-being, inclusion and cohesion by ensuring that new developments integrate well, both physically and visually, with the existing built form and existing communities; d. Use high quality local materials, adopt traditional typical local building forms and use architectural detailing and planting that will ultimately complement the local area and surroundings, helping to establish a strong sense of place. A consistent high level of design and material quality should be used across different tenures; e. Enhance either the existing character or achieve a new positive character; <u>Built Form</u> f. Make efficient use of land and, where appropriate, prioritise the use of previously developed land and buildings whilst respecting any constraints that exist; g. Ensure that the siting, scale, massing, density, orientation and appearance of the development will lead to a high standard of design and layout; h. Ensure that all proposal elements relate well to each other; i. Provide and incorporate a sufficient amount of accessible and unobtrusive areas for the storage of refuse and recycling bins without dominating the street scene;	Policy DE1 is not associated with LSEs on Habitats sites. Policy DE1 provides conditions for quality and design against which planning applications will be assessed. The policy does not allocate a quantum or location of housing or other development. Overall, Policy DE1 is screened out from further appraisal in the Appropriate Assessment.

	j. Are designed to avoid unacceptable adverse impacts or harm to the amenities of neighbouring properties and their users / occupants, in terms of privacy, sunlight and daylight, overbearing, noise, odour, traffic, vibration or other microclimatic effects or result in a poor standard of amenity for the existing and future users of the development itself. <u>Movement</u> k. Deliver compact forms of development that prioritise safe and sustainable travel choices including delivering inclusive walkable neighbourhoods providing good and safe accessibility for all (including those with disabilities and people with particular access needs, such as the elderly or people with pushchairs) to public transport, employment, services and facilities and the rights of way network; l. Are designed to encourage slower driving speeds; m. Ensure a clear layout and hierarchy of streets that are of a width suitable for their function and purpose (including access for services) and will ensure that the development is easy to understand and navigate for all groups in society; n. Achieve the site's vehicle and cycle parking requirements in an attractive and sensitively integrated way, including electric vehicle spaces and charging points and in accordance with East Sussex County Council standards; <u>Mixed and integrated uses as relevant to large major developments</u> o. Will provide an accessible, socially inclusive, integrated and suitable mix of uses that meet the housing, employment, service and facility needs of the local community to support daily life; <u>Lifespan</u> p. Are flexible in their design to provide acceptable living conditions and adapt to any changing needs of the user, such as health or mobility issues or to incorporate future technologies (such as high speed internet) to allow for remote working; and q. Are designed to last, including a consideration of management and maintenance of both private and public spaces. Applications will be expected to demonstrate early, proactive and effective engagement with the community on design issues, where appropriate.	
Policy DE2: Masterplans and Design Codes	For all developments of 100 or more dwellings the Council will require the submission of a masterplan. Design codes are also encouraged for developments of 100 or more dwellings. The Council will also require masterplans for significant non-residential development or where there are site specific complexities or sensitivities that require a masterplan led approach. This will be considered on a case-by-case basis and discussed with the applicant as part of pre-application discussions. On large scale strategic sites of 500 or more dwellings the council will require masterplans and design codes.	Policy DE2 is not associated with LSEs on Habitats sites. Policy DE2 provides design codes which planning applications must comply with. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy DE2 is screened out from further appraisal in the Appropriate Assessment.

	Masterplans are encouraged to be submitted for the Council's consideration and agreement before the submission of a planning application. The scope and content of masterplans can be confirmed in pre-application discussions. Overall, these must be informed by technical and design evidence. Masterplans will be required to accompany either the outline or full planning application and adherence to the masterplan will be secured through planning conditions and / or a legal agreement. The stage at which design codes will be required to be submitted will be agreed with the applicant as part of pre-application discussions.	
Policy DE3: Spaces for people, nature and the public realm	Public spaces and the public realm must be considered as an integral part of design. Public spaces should be available for use by all members of society and designed in a way to promote nature, health and well-being. Development proposals will be supported where they: a) Incorporate existing natural features and high-quality landscape design; b) Deliver new natural features that support and enhance the quality of place, local distinctiveness, biodiversity, water management and climate change mitigation and resilience; c) Deliver tree-lined streets and incorporate trees and other planting into the public realm; d) Take a coordinated approach to design, the siting of street furniture, public toilets where applicable, art work, boundary treatments, lighting and signage including providing a clear distinction between public and private spaces, avoiding unnecessary street clutter; e) Deliver safe and attractive, open and versatile public and green spaces with a variety of landscapes and activities to: i. encourage physical activity and promote health and well-being; ii. promote social interaction and inclusion; iii. be accessible by and meet the needs of all including the most vulnerable users, both young and old and those with disabilities; iv. encourage the active use of public spaces at different times of the day. f) Will incorporate measures to ensure that people feel safe by: i. considering safety and security early in the design process; ii. reducing any actual or perceived opportunities for crime or antisocial behaviour, in accordance with 'Secured by Design' principles of designing out crime; iii. ensuring active frontages face public streets and public spaces to provide natural surveillance; iv. avoiding the creation of dark or secluded areas; v. the use of appropriate lighting, whilst minimising light pollution;	Policy DE3 is not associated with LSEs on Habitats sites. Policy DE3 provides details of considerations for public spaces in relation to development proposals. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy DE3 is screened out from further appraisal in the Appropriate Assessment.

	vi. providing clear, unobstructed sightlines where possible; and vii. ensuring safety and opportunity for crime prevention is considered when considering the position and design of public transport interchanges and cycle and pedestrian routes.	
Policy DE4: Shop fronts and advertisements	Applications for new, replacement and temporary shop fronts, including fascias, will be supported where the proposal: a) Is based on an approach to shop front design that respects the architectural style, character and form of the buildings or location to which they relate, including appropriate use of architectural style, materials, colours and illuminations and having regard to upper floors in terms of scale, proportion, and vertical alignment; b) Within Conservation Areas or on Listed Buildings, retains and restores existing traditional shop fronts and/or features of architectural or historic interest. This will include the use of traditional materials, traditionally painted fascias and hanging signs with muted colours. Where two shop frontages are to be combined into a single unit, the design should reflect the original divisions that existed and employ correct historic shop front architectural detailing. There will be a presumption against the loss of traditional and historic shop fronts; c) Within Conservation Areas or on Listed Buildings, new and replacement shop fronts should take account of the traditional architectural detailing of adjacent and nearby historic shop fronts to ensure that the character and appearance of the heritage asset is conserved and enhanced; d) Within Conservation Areas and on Listed Buildings, where new canopies or blinds are proposed as part of a shop front, these should normally have historic precedent so as not to detract from the heritage significance of the building or Conservation Area, be of the traditional retractable type and be located within the architecturally appropriate location on the shop front. If historic blinds survive in situ, they should be refurbished, and their mechanisms restored to full functionality where/if feasible; e) Where there is an evidenced security need, within Conservation Areas or on Listed Buildings, the use of modern external security shutters will not normally be supported, nor the retrofitting of roller shutters requiring the introduction of large projecting boxes above a shop window. Consideration should be given to the provision of openwork shutters to the inside of the window. Where external shutters are unavoidable, open mesh is preferable to solid variants; <u>Advertisements</u> Applications for advertisements, including hoardings, fascia signs and illumination will be supported where the proposal is sensitively designed and not detrimental to the visual amenity of the buildings or area by reason of its scale, location, detail, character, design or illumination, impair on pedestrian or highway safety or result in, or compound, the perception of clutter on the street scene. Applications for advertisements, including hoardings and fascia signs in Conservation Areas or on Listed Buildings should respect the character and design of the building on which it is displayed and the identified significance of the historic street scene and use traditional materials and techniques. Within Conservation Areas, or where there is an effect on a heritage asset, there will be a presumption against internally illuminated signage / logos. In some cases, discreet externally illuminated signs may be acceptable but will generally only be permitted in exceptional circumstances.	Policy DE4 is not associated with LSEs on Habitats sites. Policy DE4 provides details of design constraints for shop fronts and advertisements in relation to development proposals. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy DE4 is screened out from further appraisal in the Appropriate Assessment.

	The cumulative impact of advertisements on the character and appearance of the surrounding townscape and landscape, and impact on any heritage asset, will be considered as part of any application.	
Chapter 11: Improving Our Economy		
Policy EC1: Sustainable Economic Prosperity and Investment	The Council will support economic development proposals, growth in high-skilled jobs, and tourism that contributes towards the delivery of economic prosperity in the district. Sustainable economic development will be achieved by: a) Ensuring that major economic development proposals, including those strategic employment allocations identified at Policy SP XX, demonstrate how they will contribute to addressing identified local skills shortages and support local employment, skills and education; b) Supporting proposals for new employment premises/floorspace or the redevelopment, conversion, upgrading, intensification or reconfiguration of employment premises or floorspace on existing business sites, where this will lead to an improvement of employment provision, jobs and/or assist to meet the needs of modern business standards; c) Ensuring that economic development is well-designed, suitable for incorporating a range of unit sizes and flexible in terms of its operation and use; d) Ensuring that major economic development proposals, including those strategic employment allocations identified at Policy SP XX , deliver environmental and climate change policy requirements. This will include a positive approach to a Net Zero Wealden, opportunities to deliver sustainably constructed business premises that operate efficiently, as well as providing for sustainable modes of travel wherever possible; e) Supporting the creation of a safe, attractive, accessible and high-quality environment, taking opportunities to improve connectivity within settlements through cycle/pedestrian infrastructure improvements; f) Providing the appropriate infrastructure to support business growth and particularly seek to include EV charging points and support digital infrastructure improvements, including fibre broadband and 5G; g) Taking a positive approach to the formation of small start-up businesses, as well as supporting new ways of working following the Covid-19 pandemic, such as homeworking; and h) Delivering tourism facilities and visitor accommodation that enhances the attractiveness of the district and contributes to Wealden remaining a high-quality destination to stay and visit.	Policy EC1 is not associated with LSEs on Habitats sites. Policy EC1 a general commitment to support economic development proposals. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC1 is screened out from further appraisal in the Appropriate Assessment.
Policy EC2: Existing Strategic Employment Sites	<u>Strategic Employment Sites</u> Existing strategic employment sites, premises and floorspace will be safeguarded against loss to other non-employment uses. The loss of employment uses on strategic employment sites will need to be justified and comply with the requirements of Policy EC8: The Retention of Sites in Economic or Tourism Uses of this Local Plan. To maintain and assist in meeting the employment needs of the district during the plan period, the Council will safeguard and restrict uses at the following existing strategic employment sites to use classes E(g), B2 and B8. The boundaries for these sites are shown on the policies map.	Policy EC2 is not associated with LSEs on Habitats sites. Policy EC2 is a general commitment to protect existing employment sites and their features. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC2 is screened out from further appraisal in the Appropriate Assessment.

	<u>Strategic Employment Sites</u> Ashdown Business Park, Michael Way, Maresfield Bellbrook Industrial Estate, Bell Lane, Uckfield Chaucer Business Park, Dittons Road, Polegate Diplocks Way Industrial Estate, Diplocks Way, Hailsham Durgates Industrial Estate, Durgates, Wadhurst Farningham Road Industrial Estate, Farningham Road, Crowborough Ghyll Road Industrial Estate, Heathfield Hackhurst Lane Industrial Estate, Lower Dicker Lexden Lodge Industrial Estate, Crowborough Hill, Jarvis Brook, Crowborough Milbrook Industrial Estate, Sybron Way, Crowborough Mountney Bridge Business Park, Eastbourne Road, Westham Park Lane Industrial Estate, Park Road, Crowborough Ridgewood Industrial Park, New Road, Ridgewood, Uckfield Squires Farm Industrial Estate, Easons Green, Framfield Station Road Industrial Estate, Station Road, Forest Row Station Road Industrial Estate, Station Road, Hailsham Station Road Industrial Estate, Browning Road, Heathfield Swallow Business Park, Diamond Drive, Lower Dicker Wadhurst Business Park, Faircrouch Lane, Wadhurst <u>Intensification</u> Proposals for the intensification of employment uses (i.e. E(g), B2 and B8) within the boundary of these Strategic Employment Sites, as shown in the Policies Map, will be supported providing it is in accordance with other development plan policies. <u>Redevelopment</u>	

	Proposals for the redevelopment of a site/building/premises for an employment use. (i.e. E(g), B2 and B8) within Strategic Employment Sites will be supported where it does not result in the overall loss of employment floorspace, or where the loss leads to an improvement of employment provision, jobs and/or assist to meet the needs of modern business standards. Proposals for alternative non-employment uses (including sui generis uses) will only be supported where it meets the requirements of Policy EC8: The Retention of Sites in Economic and Tourism Uses of this Local Plan, and the alternative use supports the integrity and function of the employment site. <u>Trade Counters</u> Trade counters in strategic employment sites will only be supported where they are clearly subsidiary and a 'de-minimus' feature of the primary use of the unit, where only a small quantum of trade counter use is proposed and where there is no adverse effect on the employment and / or neighbouring area, as a consequence of the trade counter.	
Policy EC3: Retention and / or Loss of Non-Strategic Employment Sites Premises or Floorspace	<u>Non-Strategic Employment Sites</u> Existing employment sites, premises, buildings and floorspace currently used for employment purposes (use classes E(g), B2 and B8) will be protected against loss to non-employment uses. Where planning permission is required, proposals that will result in the loss of employment use will only be permitted where: a. There are no strong economic reasons to retain the site, premises or floorspace; b. The proposal would result in economic benefits including generating an equivalent number of, or an increase in jobs; c. The site is not appropriate for the continuation of its present use, or any other employment use, due to a significant detriment to the environment or amenity of the area; d. The new proposal would not be detrimental to the function or operation of the wider site; and e. Sufficient parking is provided. Proposals for the loss of a business use under use classes E(g), B2 and B8 that will not generate an alternative employment use will be considered in accordance with Policy EC8: The Retention of Sites in Economic or Tourism Uses.	Policy EC3 is not associated with LSEs on Habitats sites. Policy EC3 is a general commitment to protect existing employment sites and their features. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC3 is screened out from further appraisal in the Appropriate Assessment.
Policy EC4: Rural Economy	<u>Part 1: Economic development uses outside of development boundaries</u> Proposals for economic development outside development boundaries, as defined on the Policies Map, will be supported where:	Policy EC4 is not associated with LSEs on Habitats sites. Policy EC4 lays out conditions and limitations of acceptable development proposals which may impact the rural economy. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites.

	i. The rural location for the business is justified to sustain, expand or enhance the rural economy; ii. It enhances local employment opportunities; iii. The location is considered sustainable in terms of accessibility; iv. The proposal delivers new EV charging points at the premises; v. The proposal would not prejudice existing uses or require further rural buildings to facilitate the existing use; vi. The proposal is of a scale that is consistent with the proposed use and its rural character and location; and vii. The proposal would not generate traffic of a type or amount inappropriate for the rural roads affected by the proposal and the site's existing vehicular access is suitable or can be made suitable for the proposed use. <u>Part 2: Conversion, re-use and adaptation of existing rural buildings for business use</u> Proposals will only be supported outside of development boundaries where: i. the building is structurally sound and of a permanent and substantial construction capable of conversion without significant new build, extension or alteration; ii. the proposal makes an efficient and viable use of a redundant or disused building, including the optimal viable use of a heritage asset where applicable; iii. there is no impact on local amenity, landscape character or heritage assets; iv. there is an enhancement to the immediate setting; and v. the curtilage of the building is restricted to facilitate the requirements of the employment use only. <u>Part 3: Agricultural, forestry, horticultural and other rural based land development</u> Where a proposal for agricultural, forestry, horticultural and other rural based land use cannot be accommodated within an existing building, proposals will only be supported where: i. there is a justified business case that demonstrates that development is necessary at the scale proposed to sustain and meet the reasonable needs of the existing rural use; ii. previously development land is considered in the first instance for the new building; iii. the siting, design and external appearance of the development is designed to meet the needs of the rural business, respecting local rural distinctiveness, traditional farmstead groupings and is appropriately located to existing buildings; iv. the design and location of the building relates well to intended rural use and reflects the functional need of the rural use; and	Overall, Policy EC4 is screened out from further appraisal in the Appropriate Assessment.

	v. the development does not have an intrusive impact on the wider landscape it sits within, particularly where a new building is sited within or adjoining designated landscapes. Proposals that are for the purpose of assisting farms modernise and/or adapt to funding changes or climate change will be supported in principle subject to other policies within the plan.	
Policy EC5: Equestrian Development	Proposals for equestrian facilities, including any ancillary buildings or structures, will be supported provided that the following criteria is met: a. the proposal is not sited in a particularly prominent or isolated location where new development of this nature would be considered inappropriate to its rural setting; b. it can be demonstrated that the re-use of existing buildings on sites for equestrian use is not appropriate before new or replacement buildings are considered; c. if new buildings/facilities are required, that they are of an appropriate scale to their landscape setting and, where feasible, closely related to existing buildings; d. the design of the development incorporates a drainage system that provides for the suitable disposal of foul and surface water drainage, including animal waste; e. sufficient grazing land for horses is available; f. the proposal should, where possible, be well related to the existing bridleway network; g. that any outdoor lighting/floodlighting is designed to avoid a detrimental impact on visual or residential amenity, wildlife or highway safety, but allows the safe operation of activities on site; h. the proposal would not involve any changes in land levels by raising, excavation or other engineering works, which would be harmful to the landscape character of the area; i. car parking requirements can be accommodated satisfactorily within the immediate surrounds of the buildings, or where this is not suitable due to highway safety concerns, an alternative solution is agreed; and j. the proposal does not generate traffic of a type or amount inappropriate for the rural roads affected by the proposal or require improvements or alterations to these roads, which would be detrimental to the rural character of the area. Where the above requirements are met, the Council may also find it appropriate to consider the following restrictions through planning conditions: k. the removal of permitted development rights for fencing, hardstanding and external storage, where it is considered that there is the need to control potential adverse landscape impacts which can arise from the poor management of the site or the excessive sub-division of the land.	Policy EC5 is not associated with LSEs on Habitats sites. Policy EC5 lays out conditions and limitations of acceptable development proposals with respect of equestrian development. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC5 is screened out from further appraisal in the Appropriate Assessment.
Policy EC6: Tourism Facilities and Attractions	<u>Provision of New, Improved, Upgraded or Extended Tourism Facilities and Attractions</u>	Policy EC6 is not associated with LSEs on Habitats sites. Policy EC6 lays out conditions and limitations of acceptable development proposals with respect of Tourism Facilities and Attractions.

	The Council supports new development to advance the visitor economy for both tourism, leisure and business purposes where a proposal demonstrates that it: a. is of an appropriate scale, nature and appearance, relating well to its surroundings; b. is located within the development boundary, as defined on the Policies Map, and is easily accessible by sustainable modes of transport, including walking and cycling; c. assists in town / village regeneration, contributing to the local economy; d. benefits both existing residents and visitors; e. provides for high quality and sustainable tourism facilities on a year-round basis; and f. contributes to the retention and enhancement of existing facilities; Proposals for tourism facilities and attractions in the countryside will only be supported where: g. it relates to an existing tourism facility or attraction that is seeking expansion and is of a scale, form and design suitable to its location; or h. where sustainable settlements would not be suitable for the scale and nature of the facility or attraction, for example where an existing attraction relies on a geographically fixed resource; or i. where there will be an overriding benefit for locating away from a sustainable settlement and the proposal would not relate in harm and can be accessed by public transport. An overriding benefit could relate to the economy, community or environment.	The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC6 is screened out from further appraisal in the Appropriate Assessment.
Policy EC7: Visitor Accommodation	Provision of New, Improved, Upgraded or Extended Tourism Facilities and Attractions The Council supports new development for visitor accommodation in both attracting visitors to the district and supporting local jobs within Wealden. The Council will seek to retain and provide a broad range of visitor accommodation. Development proposals for new visitor accommodation, including extensions and improvements to existing accommodation, will be supported where proposals can satisfy the following criteria: a. it increases the range and/or quality of visitor accommodation; b. in the case of new serviced tourist accommodation, the proposal is located within the development boundary of a sustainable settlement (as defined in the settlement hierarchy) and is easily accessible by sustainable modes of transport, including walking and cycling;	Policy EC7 is not associated with LSEs on Habitats sites. Policy EC7 lays out conditions and limitations of acceptable development proposals related to Visitor Accommodation. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC7 is screened out from further appraisal in the Appropriate Assessment.

	c. in the case of non-serviced tourist accommodation, this will be supported across the district (subject to other policies in this Local Plan) where the proposal seeks to improve the provision of sustainable transport options to the site to ensure that the site is accessible from a sustainable settlement; d. opportunities are taken to use existing buildings on site where possible. Where new buildings are essential, they must be designed sensitively and to a high standard; e. the proposed development has no significant adverse impact on the landscape, ecological and historic characteristics of the site; f. the proposed development is of an appropriate scale to its immediate surroundings and would not detrimentally impact the character of the area; g. there would be no harm on highway safety or a severe impact on the immediate highway network; h. the car parking requirements for the proposal can be accommodated satisfactorily within the immediate surrounds of the buildings, or where this is not suitable due to highway safety concerns, an alternative solution is agreed. Where planning permission is granted for caravan and camping sites, it will normally be subject to a planning condition restricting the use to holiday/leisure accommodation only and the site may also be subject to a seasonal occupancy condition in limited circumstances. a. Development resulting in the loss of sites or premises used, or last in (lawful) use, b. as visitor accommodation	
Policy EC8: The Retention of Sites in Economic or Tourism Use and Community Facilities	In accordance with policies set out in this Local Plan, proposals that involve the loss or deterioration of sites/premises in a tourism or economic use*, including those sites that were last in such a (lawful) use, as well as community facilities** must demonstrate that the site is genuinely redundant and there is no reasonable prospect of a continued use, as well as being supported by the following: a. evidence of an active and effective marketing campaign that will be expected to cover a period, normally of 18 months, with written confirmation from a specialist commercial agent(s) that clearly indicates a lack of demand for the existing use (or an alternative use where this applicable). This marketing process would also need to demonstrate that the site/premises has remained unlet or for sale for the 18-month period, despite genuine and sustained attempts to let or sell on reasonable terms; and b. evidence that demonstrates that the site/premises is not or is unable to be financially viable for its current use (or last lawful use), including alternative uses where applicable. Proposals that would result in the loss of facilities or features that may undermine the viability of the existing community facility, tourism use, or economic use would normally be refused planning permission unless there are exceptional circumstances for such a proposal to proceed and this meets all other policy provisions in this Local Plan.	Policy EC8 is not associated with LSEs on Habitats sites. Policy EC8 lays out conditions and limitations of acceptable development proposals related to the retention of sites in Economic or tourism use and community facilities. The policy does not allocate a quantum or location of employment development with potential linking impact pathways to Habitats sites. Overall, Policy EC8 is screened out from further appraisal in the Appropriate Assessment.

	Where the review of submitted information by an independent consultant is considered necessary, the applicant will be required to cover such costs as part of the planning application process. *This would include tourist accommodation or attractions and sites in (or last in) employment use (use classes E(g), B2 and B8). **This would include public houses and shops outside of defined District, Service and Local Centres.	
Chapter 122: Supporting and Improving our Towns and Local Centres		
Strategic Policy TC1: District, Service and Local Centre Hierarchy and 'Town Centre' First Principles	1. Development proposals for main town centre uses will be expected to take a 'town centre first' approach and be located within district, service and local centres, as defined on the Policies Map. Main Town centre uses should be located within these boundaries unless the proposal complies with the sequential test under Policy TC2 (Sequential and Local Impact Test). The defined centres hierarchy for the district is as follows: a. District Centres: Uckfield, Hailsham, Crowborough; and Heathfield; b. Service centres: Polegate, Forest Row; and Wadhurst; c. Local Centres: Pevensey Bay, Mayfield, Horam, Herstmonceux, Rotherfield; and Jarvis Brook (Crowborough). 2. Within the district, service and local centres, as defined on the Policies Map, proposals for 'main town centre uses' will be supported where they: i. Seek to maintain or enhance the role, character, overall mix and diverse offer of uses ensuring a range of main town centre uses to support local communities, without the over concentration of any one use. ii. Develop and enhance the evening and night-time economy without resulting in adverse impacts on residential amenity and daytime footfall and can demonstrate that such uses will add to the vitality and viability of the centre; iii. Are of an appropriate scale to the centre and reflect its function and position within the defined town centre hierarchy; iv. Support the creation of a safe, attractive, accessible and high-quality environment, taking into account the identity of centres, their heritage as well as their connections with other towns, attractions and accommodation. This will include taking opportunities to improve sustainable travel connectivity within the centres and adjoining areas where possible; and v. Retain an active ground floor frontage. 3. Support will also be given, within district, service and local centre boundaries, as defined on the Policies Map, for:	Policy TC1 is not associated with LSEs on Habitats sites. Policy TC1 describes the policy for town centre development and the conditions which development proposals must take account of. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy TC1 is screened out from further appraisal in the Appropriate Assessment.

	i. The amalgamation or subdivision of existing units that contain 'main town centre uses', providing it only results in a minimal loss of floorspace, but leads to an overall improvement to the format of the unit, an increase in jobs or meets the needs of a modern retail/leisure business; ii. Temporary 'meanwhile' uses to occupy vacant units where they support the vitality and viability of designated centres and do not compromise the future redevelopment of the unit/site; iii. Proposals for upper floor uses that contribute to the centres vitality and viability, including residential uses, subject to conformity with other policies in the Local Plan. The redevelopment of upper floor uses should not result in the loss of ancillary storage space or other beneficial uses to the extent that it would make a ground floor unit unviable; and iv. Delivery lockers, where it can be demonstrated that their installation would enhance the vitality and viability of the designated centre and would not restrict accessibility for pedestrians or harm the public realm. 4. The change of use of existing ground floor premises, that is defined as a 'main town centre use' to residential will not be supported within a defined centre.	
Policy TC2: Sequential and Local Impact Test	To support the vitality and viability of town, service and local centres as defined on the Policies Map, the sequential approach as set out in the NPPF will be applied where main town centre uses are proposed on the edge of or outside of centres. Where the sequential test is met for proposals at the edge of an existing centre or in out-of-centre locations, these are expected to provide specific measures that will, where appropriate, establish new or improve the quality and function of, sustainable connections to the centre, in particular walking/cycling routes and public transport links. The nature and extent of the measures should be directly related to the scale of the proposal. Proposals should demonstrate flexibility on issues such as the format and scale of the development, so that opportunities to utilise suitable town centre or edge of centre sites are explored first before out-of-town locations are considered. Applications for developments outside of defined centres above the following thresholds will be expected to be accompanied by an impact assessment: a) Over 350 square metres (gross) for retail proposals b) Over 2,500 square metres (gross) for leisure proposals In both cases, the impact assessment must sufficiently demonstrate that it will not have a significant adverse impact on the district's defined centres, either on their own or cumulatively in consideration of other commitments in the area. Where necessary, planning conditions and/or legal agreements will be applied to any new planning permission outside of defined centres, including defining the nature and extent of the proposed use to ensure no future adverse impacts on existing defined centres.	Policy TC2 is not associated with LSEs on Habitats sites. Policy TC2 further describes policies for town centre development and the conditions which development proposals must take account of. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy TC2 is screened out from further appraisal in the Appropriate Assessment.

Policy TC3: Primary Shopping Areas	<u>Primary Shopping Areas</u> Retail uses will be encouraged in Primary Shopping Areas, as defined on the Policies Map, to ensure that these central areas retain their role as shopping destinations meeting the shopping needs of the community and generating the required footfall during the day for our centres to continue to be vibrant and viable. Uses that are likely to detract from the overall shopping function and have closed or inactive frontages will be resisted in the Primary Shopping Area, as this will detract from the overall shopping function.	Policy TC3 is not associated with LSEs on Habitats sites. Policy TC3 relates to primary shopping areas and general support for development in these areas which are aligned to the overall retail experience. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy TC3 is screened out from further appraisal in the Appropriate Assessment.
Policy TC4: Garden Centres	Proposals for the expansion/extension of existing garden centres outside of development boundaries, as defined on the Policies Map, will be permitted when the following criteria is met: a. the sale of plants, horticultural products, garden buildings, garden furniture and ornaments within the garden centre remains the principal use; b. the additional traffic generated does not have an adverse impact on local roads by reason of their inadequate capacity or rural nature; c. it can accommodate car parking requirements satisfactorily within the immediate surrounds of the building, or where this is not suitable due to highway safety concerns, an alternative solution is agreed; and d. the site has good accessibility to an existing settlement and is not situated in an isolated location. . Where a significant extension to an existing garden centre is permitted, the Council will consider whether a planning condition to ensure the retail floorspace principally relates to the sale of garden/horticultural products is required. It should be noted that all extensions to existing garden centres that are proposed to have retail floorspace above 350 square metres gross will be subject to the Local Impact Test under Policy TC2: Sequential and Local Impact Test of this Local Plan. All other ancillary uses that defined as ‘main town centre uses’ within national planning policy (i.e. cafes/restaurants) may also be considered under the sequential test.	Policy TC4 is not associated with LSEs on Habitats sites. Policy TC4 specifies the conditions under which planning proposals related to garden centres will be supported. The policy does not allocate quanta or locations of residential or employment development. Therefore, no impact pathways to Habitats sites are present. Overall, Policy TC4 is screened out from further appraisal in the Appropriate Assessment.

Appendix C Site Allocations and distances to Ashdown Forest SPA / SAC

Table 8: Number of residential dwellings to be delivered and distance to the Ashdown Forest SPA / SAC)

Settlement	Site Allocation	Number of Dwellings	Floorspace sqm	Approx. Distance to Ashdown Forest SPA / SAC (km)
Berwick	Land North of Recreation Ground, Berwick Station	10	0	>10 NW
	Land West of Station Road, Berwick Station	27	0	>10 NW
Buxted	Land east of Coopers Green Road, Ringles Cross	20	0	2.8 S
	Land opposite Roundwood, Coopers Green Road, Ringles Cross	20	0	3.2 S
	Land behind the Croft, Coopers Green Road, Ringles Cross	15	0	3.2 S
	Lower Totease Farm, Framfield Road, Buxted	10	0	4.2 S
	Land at The Walled Garden, Five Ash Down	20	0	2.5 S
	Land east of Great Totease Farm, Church Road, Buxted	20	0	3.8 S
	Land at Holly Farm, Station Road, Buxted	20	0	3.8 S
	Land at Mockbeggar Farm, London Road, Uckfield	60	0	2.9 S
Crowborough	Kingswood, Luxford Lane, Crowborough	6	0	2.4 W
	Land adjacent to the London Road and Pilmer Road junction, Crowborough	28	0	0.9 W
	Land at Steel Cross Farm, Green Lane, Crowborough	60	0	2.4 W
	Land at Byeways, Palesgate Lane, Crowborough	30	0	2.5 W
	Land at Millbrook Road, Crowborough	15	0	1.4 W
	Land east of Southview Close, Crowborough	8	0	1.1 W
East Hoathly with Halland	Land off South Street, East Hoathly	20	0	>10 NW
	Land at Hesmonds Stud, East Hoathly	170	0	>10 NW
	Broomy Lodge Field, London Road, East Hoathly	30	0	>10 NW
	Land east of South Street (Site A), East Hoathly	30	0	>10 NW
	Harrison's, south of London Road, East Hoathly	150	0	>10 NW
Framfield	Blackboys Inn and Adjoining Land, Lewes Road, Blackboys	9	0	7.6 NW
	Cysleys Farm, Eastbourne Road, Uckfield	145	0	6.5 N
Frant	Land between Court Lodge and Bells Yew Green Industrial Estate, B2169, Bells Yew Green	20	0	>10 SW

	Land at Benhall Mill Road, Tunbridge Wells	60	0	>10 SW
	Land at Bayham Road, Tunbridge Wells	130	0	9.3 SW
	Land at Whinlatter, St Mark's Road, Tunbridge Wells	7	0	9 SW
	Land to the west of Frant Road, Tunbridge Wells (pinewood Farm)	260	0	8.6 SW
Hailsham	Land east of Battle Road, Harebeating Lane, Hailsham	300	0	>10 NW
	Land south of A271 and north of Harebeating Lane, Hailsham (Site B)	180	0	>10 NW
	Land to the east of Battle Road, Hailsham	100	0	>10 NW
	Land at Harebeating Nursery, Harebeating Lane, Hailsham	10	0	>10 NW
	Hamlins Mill, Mill Road, Hailsham	6	0	>10 NW
	Bolneys Farm, South Road, Hailsham	60	0	>10 NW
	150 and 152 Battle Road, Hailsham	5	0	>10 NW
	Grovelands Primary School, Gleneagles Drive, Hailsham	40	0	>10 NW
	Land south of Howard Close, Hailsham	40	0	>10 NW
	Amberstone Council Depot, Amberstone, Hailsham	15	0	>10 NW
	Fire Station, Victoria Road, Hailsham	10	0	>10 NW
	Land at Hailsham Delivery Office, 11 North Street, Hailsham	8	0	>10 NW
	Land at the Market, Market Street, Hailsham	40	0	>10 NW
	Harebeating Farm, Harebeating Lane, Hailsham	20	0	>10 NW
	Land at The Paddocks, South Road, Hailsham	8	0	>10 NW
	Land east of A22, South Hailsham	0	16,750	N/A
Hartfield	Land at Castle Farm, Withyham Road, Hartfield	5	0	2.4 S
	Land at Old Crown Farm, Edenbridge Road, Hartfield	6	0	2.6 S
Heathfield and Waldron	Field to the east of Burnetts Farm, Firgrove Road, Cross-in-Hand	10	0	9.9 NW
	Land to rear of Breton House, B2102, Cross in Hand	15	0	>10 NW
	Land at Sunnyside, A267, Cross in Hand	9	0	9.2 W
	Land south west of Ghyll Road, Tilsmore, Heathfield	35	0	>10 NW
	Land south of Burwash Road and east of Tower Street, Heathfield	20	0	>10 NW

	Land at 15 Tower Street, Heathfield	10	0	>10 NW
	Land at and surrounding Rothershaw, High Street, Heathfield	22	0	>10 NW
	Land at Heathfield Police Station, High Street, Heathfield	6	0	>10 NW
	Land at Snatchells Farm, A265, Heathfield	24	0	>10 NW
Hellingly	Knights Farm, Lower Dicker, Hailsham	0	40,000	N/A
	Land adjoining 13 Station Road, Hellingly	10	0	>10 NW
	Land at Park Farm, New Road, Hellingly	360	0	>10 NW
	Woods Corner, North Street, Lower Horsebridge	15	0	>10 NW
Herstmonceaux	Land at Collins Honda, Hailsham Road, Herstmonceux	9	0	>10 NW
Horam	Land adjoining Discovery Way and Village Hall, Horam	5	0	>10 NW
	Land at Cauldavon, Horebeech Lane, Marle Green, Horam	45	0	>10 NW
	Land at Great Easterfields, Chiddingly Road, Horam	6	0	>10 NW
	Clearview Farm, Chiddingly Road, Horam	35	0	>10 NW
	Phase 2, Horeham Flat Farm, Chiddingly Road, Horam	6	0	>10 NW
	Horam (south and east of existing village – mostly around Coxlow Farm)	750	4,000	N/A
Isfield	Holly Gap Farm, Station Road, Isfield	10	0	8.5 N
	Land to rear of Sandpit Cottage. Station Road, Isfield	10	0	8 N
Maresfield	Land south of Maresfield, A22, Maresfield	210	0	2.3 N
	Land south west of Park Farm, A22, Maresfield	25	0	2.1 N
Ninfield	Land adjacent to Ninfield Reservoir, High Street, Ninfield	20	0	>10 NW
Polegate	Paddock to front of Ditton Park Industrial Estate, Dittions Road, Polegate	24	0	>10 NW
	Hindsland Fields (east), Eastbourne Road, Polegate	30	0	>10 NW
	Land at Shepham Lane, Polegate	240	0	>10 NW
	Hindsland Fields (west), Eastbourne Road, Polegate	60	0	>10 NW
	Former Waterhouse Coaches site, Dittons Road, Polegate	8	0	>10 NW
	Land at Royal Mail Delivery Office, 74 High Street, Polegate	8	0	>10 NW
	Polegate Station Car Park, High Street, Polegate	25	0	>10 NW
Rotherfield	Hideaway, Tubwell Lane, Crowborough	5	0	3.7 NW

Uckfield	Land at White House Farm, London Road, Uckfield	240	0	3 S
	Land at Thorncrest, Lewes Road, Uckfield	30	0	6 S
	Land at Horstedpond Farm, Lewes Road, Uckfield	350	0	6.7 (note that only part of this allocation falls within the 7km mitigation zone)
	Charlwood Manor, Snatts Road, Uckfield	17	0	3.9 S
	Sunview, 46 New Road, Ridgewood, Uckfield	30	0	6.6 S
	Land at Springfield, Lewes Road, Ridgewood, Uckfield	15	0	6.4 S
	Cress Farm, 20 Lewes Road, Ridgewood, Uckfield	8	0	6.5 S
	Land west of Uckfield, Ridgewood, Uckfield	100	0	5.2 S
	Land rear of Oakley Court, Selby Road, Uckfield	6	0	5.5 S
	Uckfield Police Station, New Town, High Street, Uckfield	10	0	5.3 S
	Land off Old Eastbourne Road, Uckfield	30	0	5.3 S
Wadhurst	Land at Windmill House, Windmill Lane, Wadhurst	20	0	>10 W
Westham	Dittons Nursery, Dittons Road, Stone Cross	20	0	>10 NW
	Land at Hazlebank, Rattle Road, Stone Cross	8	0	>10 NW
	Land to the west of the B2104, Hankham	15	0	>10 NW
	Sharnfold Farm, Hailsham Road, Stone Cross	120	0	>10 NW
	Land at and adjacent to The Downs View and Emberson, Hailsham Road, Stone Cross	60	0	>10 NW
	Land adjacent to 125 Rattle Road, Westham	7	0	>10 NW
	Land at Peelings Lane, Westham	150	0	>10 NW
Withyham	Land to the rear of Cooks Corner Farm and to the north of London Road, Crowborough	15	0	0.75 W
	Land south of Back Lane and to the west of railway line, Groombridge	21	0	4.9 SW

Appendix D Air Quality Modelling Ashdown Forest SPA / SAC

Figure 5: Ecological air quality transects modelled in the Ashdown Forest SPA / SAC.

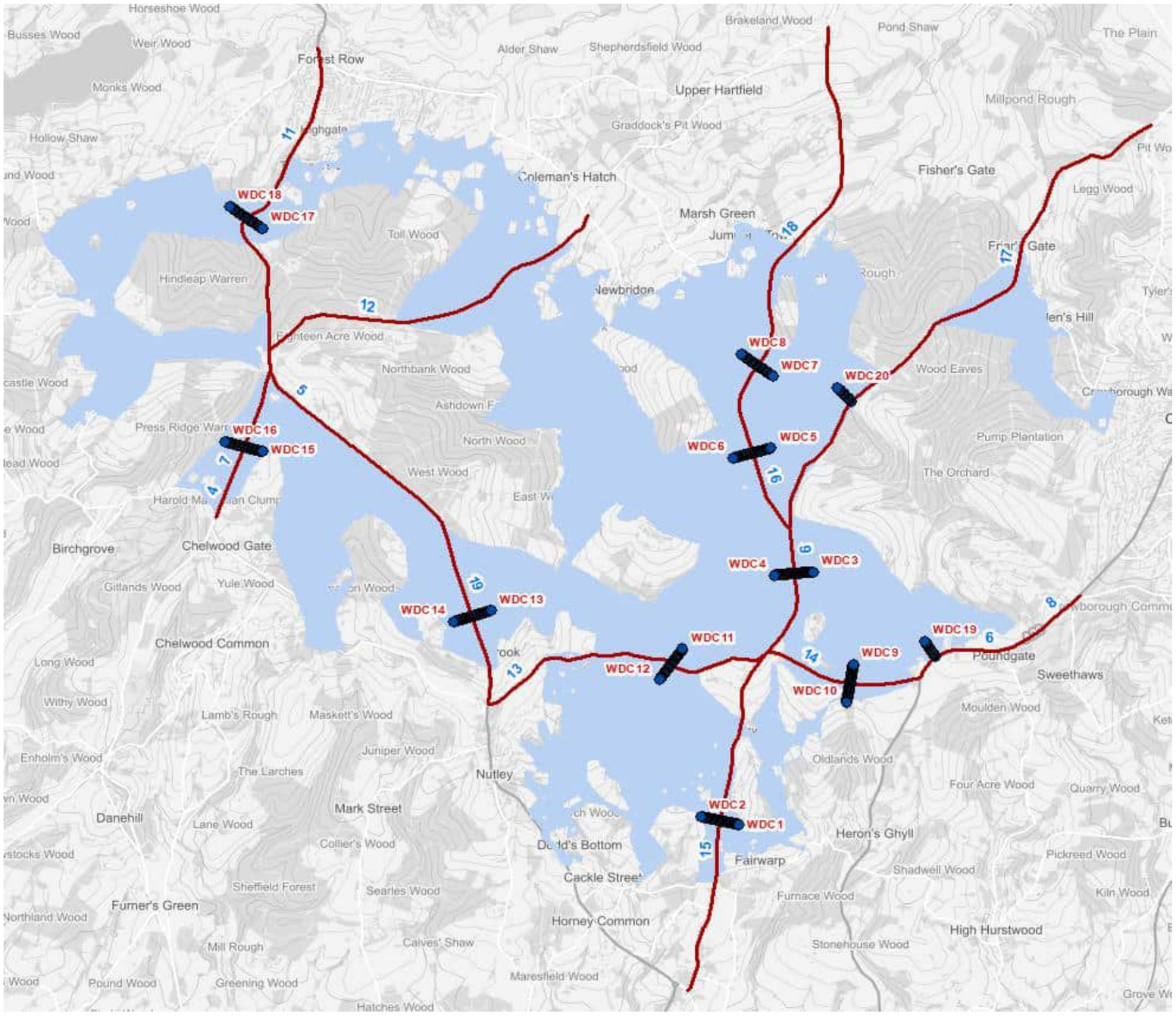


Table 9: Air quality data for NH_3, NOx and total nitrogen deposition modelled for the ecological transects identified in Figure 5.

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m³)				Total Annual Mean NH_3 (µg/m³)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC1_1m	1m	36.63	10.34	10.86	10.87	1.12	0.99	1.06	1.06	17.76	13.86	14.26	14.27	1.27	0.99	1.02	1.02
WDC1_10m	10m	20.30	8.73	8.93	8.93	0.81	0.76	0.79	0.79	14.97	12.56	12.71	12.71	1.07	0.90	0.91	0.91
WDC1_20m	20m	16.40	8.34	8.46	8.47	0.74	0.71	0.73	0.73	14.31	12.26	12.35	12.35	1.02	0.88	0.88	0.88
WDC1_30m	30m	14.74	8.18	8.26	8.27	0.71	0.69	0.70	0.70	14.03	12.14	12.20	12.20	1.00	0.87	0.87	0.87
WDC1_40m	40m	13.82	8.09	8.15	8.16	0.70	0.68	0.69	0.69	13.88	12.07	12.12	12.12	0.99	0.86	0.87	0.87
WDC1_50m	50m	13.23	8.03	8.09	8.09	0.69	0.67	0.68	0.68	13.78	12.03	12.07	12.07	0.98	0.86	0.86	0.86
WDC1_60m	60m	12.83	7.99	8.04	8.04	0.68	0.67	0.67	0.67	13.72	12.00	12.03	12.03	0.98	0.86	0.86	0.86
WDC1_70m	70m	12.53	7.96	8.00	8.01	0.68	0.66	0.67	0.67	13.67	11.98	12.01	12.01	0.98	0.86	0.86	0.86
WDC1_80m	80m	12.31	7.94	7.97	7.98	0.67	0.66	0.66	0.66	13.63	11.96	11.99	11.99	0.97	0.85	0.86	0.86
WDC1_90m	90m	12.13	7.92	7.95	7.96	0.67	0.66	0.66	0.66	13.60	11.95	11.97	11.98	0.97	0.85	0.86	0.86
WDC1_100m	100m	11.98	7.90	7.94	7.94	0.67	0.66	0.66	0.66	13.58	11.94	11.96	11.96	0.97	0.85	0.85	0.85
WDC1_110m	110m	11.86	7.89	7.92	7.93	0.66	0.65	0.66	0.66	13.56	11.93	11.95	11.95	0.97	0.85	0.85	0.85
WDC1_120m	120m	11.76	7.88	7.91	7.92	0.66	0.65	0.66	0.66	13.55	11.93	11.94	11.95	0.97	0.85	0.85	0.85
WDC1_130m	130m	11.68	7.87	7.90	7.90	0.66	0.65	0.65	0.66	13.53	11.92	11.94	11.94	0.97	0.85	0.85	0.85
WDC1_140m	140m	11.60	7.87	7.89	7.90	0.66	0.65	0.65	0.65	13.52	11.92	11.93	11.93	0.97	0.85	0.85	0.85
WDC1_150m	150m	11.54	7.86	7.88	7.89	0.66	0.65	0.65	0.65	13.51	11.91	11.93	11.93	0.96	0.85	0.85	0.85
WDC1_160m	160m	11.48	7.85	7.88	7.88	0.66	0.65	0.65	0.65	13.50	11.91	11.92	11.92	0.96	0.85	0.85	0.85
WDC1_170m	170m	11.43	7.85	7.87	7.87	0.66	0.65	0.65	0.65	13.49	11.91	11.92	11.92	0.96	0.85	0.85	0.85
WDC1_180m	180m	11.38	7.84	7.86	7.87	0.66	0.65	0.65	0.65	13.49	11.90	11.91	11.92	0.96	0.85	0.85	0.85
WDC1_190m	190m	11.34	7.84	7.86	7.86	0.66	0.65	0.65	0.65	13.48	11.90	11.91	11.91	0.96	0.85	0.85	0.85
WDC1_200m	200m	11.30	7.84	7.86	7.86	0.66	0.65	0.65	0.65	13.47	11.90	11.91	11.91	0.96	0.85	0.85	0.85
WDC2_1m	1m	34.55	10.14	10.62	10.63	1.08	0.96	1.02	1.02	17.39	13.69	14.06	14.06	1.24	0.98	1.00	1.00

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC2_10m	10m	18.92	8.59	8.76	8.77	0.79	0.74	0.77	0.77	14.73	12.45	12.58	12.58	1.05	0.89	0.90	0.90
WDC2_20m	20m	15.44	8.25	8.35	8.36	0.72	0.70	0.71	0.71	14.14	12.19	12.26	12.26	1.01	0.87	0.88	0.88
WDC2_30m	30m	14.00	8.10	8.18	8.18	0.70	0.68	0.69	0.69	13.90	12.08	12.13	12.13	0.99	0.86	0.87	0.87
WDC2_40m	40m	13.20	8.02	8.08	8.09	0.69	0.67	0.68	0.68	13.77	12.02	12.06	12.06	0.98	0.86	0.86	0.86
WDC2_50m	50m	12.70	7.98	8.02	8.03	0.68	0.66	0.67	0.67	13.69	11.99	12.02	12.02	0.98	0.86	0.86	0.86
WDC2_60m	60m	12.36	7.94	7.98	7.99	0.67	0.66	0.66	0.66	13.64	11.97	11.99	11.99	0.97	0.85	0.86	0.86
WDC2_70m	70m	12.11	7.92	7.95	7.96	0.67	0.66	0.66	0.66	13.60	11.95	11.97	11.97	0.97	0.85	0.86	0.86
WDC2_80m	80m	11.92	7.90	7.93	7.93	0.67	0.65	0.66	0.66	13.57	11.94	11.96	11.96	0.97	0.85	0.85	0.85
WDC2_90m	90m	11.77	7.88	7.91	7.92	0.66	0.65	0.66	0.66	13.54	11.93	11.94	11.95	0.97	0.85	0.85	0.85
WDC2_100m	100m	11.65	7.87	7.90	7.90	0.66	0.65	0.65	0.65	13.53	11.92	11.93	11.94	0.97	0.85	0.85	0.85
WDC2_110m	110m	11.55	7.86	7.88	7.89	0.66	0.65	0.65	0.65	13.51	11.91	11.93	11.93	0.97	0.85	0.85	0.85
WDC2_120m	120m	11.47	7.85	7.88	7.88	0.66	0.65	0.65	0.65	13.50	11.91	11.92	11.92	0.96	0.85	0.85	0.85
WDC2_130m	130m	11.40	7.85	7.87	7.87	0.66	0.65	0.65	0.65	13.49	11.90	11.91	11.92	0.96	0.85	0.85	0.85
WDC2_140m	140m	11.34	7.84	7.86	7.86	0.66	0.65	0.65	0.65	13.48	11.90	11.91	11.91	0.96	0.85	0.85	0.85
WDC2_150m	150m	11.29	7.84	7.85	7.86	0.66	0.65	0.65	0.65	13.47	11.90	11.91	11.91	0.96	0.85	0.85	0.85
WDC2_160m	160m	11.24	7.83	7.85	7.85	0.66	0.65	0.65	0.65	13.46	11.89	11.90	11.90	0.96	0.85	0.85	0.85
WDC2_170m	170m	11.20	7.83	7.84	7.85	0.65	0.65	0.65	0.65	13.46	11.89	11.90	11.90	0.96	0.85	0.85	0.85
WDC2_180m	180m	11.17	7.82	7.84	7.84	0.65	0.65	0.65	0.65	13.45	11.89	11.90	11.90	0.96	0.85	0.85	0.85
WDC2_190m	190m	11.14	7.82	7.84	7.84	0.65	0.65	0.65	0.65	13.45	11.89	11.89	11.90	0.96	0.85	0.85	0.85
WDC2_200m	200m	11.11	7.82	7.83	7.84	0.65	0.65	0.65	0.65	13.44	11.88	11.89	11.89	0.96	0.85	0.85	0.85
WDC3_1m	1m	42.77	11.00	11.63	11.91	1.33	1.05	1.13	1.16	19.46	14.39	14.85	15.06	1.39	1.03	1.06	1.08
WDC3_10m	10m	23.19	9.07	9.33	9.44	0.90	0.79	0.82	0.83	15.81	12.90	13.08	13.16	1.13	0.92	0.93	0.94
WDC3_20m	20m	18.30	8.59	8.75	8.82	0.79	0.73	0.75	0.75	14.89	12.54	12.65	12.70	1.06	0.90	0.90	0.91

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC3_30m	30m	16.19	8.38	8.50	8.55	0.75	0.70	0.71	0.72	14.50	12.39	12.47	12.50	1.04	0.89	0.89	0.89
WDC3_40m	40m	15.01	8.27	8.36	8.40	0.72	0.69	0.70	0.70	14.29	12.31	12.37	12.40	1.02	0.88	0.88	0.89
WDC3_50m	50m	14.27	8.19	8.27	8.31	0.71	0.68	0.69	0.69	14.15	12.26	12.31	12.33	1.01	0.88	0.88	0.88
WDC3_60m	60m	13.74	8.14	8.21	8.24	0.70	0.67	0.68	0.68	14.06	12.22	12.26	12.28	1.00	0.87	0.88	0.88
WDC3_70m	70m	13.36	8.10	8.16	8.19	0.69	0.67	0.68	0.68	13.99	12.20	12.23	12.25	1.00	0.87	0.87	0.88
WDC3_80m	80m	13.07	8.07	8.13	8.15	0.69	0.67	0.67	0.67	13.94	12.18	12.21	12.23	1.00	0.87	0.87	0.87
WDC3_90m	90m	12.83	8.05	8.10	8.13	0.68	0.66	0.67	0.67	13.90	12.16	12.19	12.20	0.99	0.87	0.87	0.87
WDC3_100m	100m	12.64	8.03	8.08	8.10	0.68	0.66	0.67	0.67	13.87	12.15	12.18	12.19	0.99	0.87	0.87	0.87
WDC3_110m	110m	12.49	8.02	8.06	8.08	0.68	0.66	0.66	0.67	13.84	12.14	12.17	12.18	0.99	0.87	0.87	0.87
WDC3_120m	120m	12.35	8.00	8.04	8.06	0.67	0.66	0.66	0.66	13.82	12.13	12.15	12.17	0.99	0.87	0.87	0.87
WDC3_130m	130m	12.24	7.99	8.03	8.05	0.67	0.66	0.66	0.66	13.80	12.13	12.15	12.16	0.99	0.87	0.87	0.87
WDC3_140m	140m	12.14	7.98	8.02	8.04	0.67	0.66	0.66	0.66	13.78	12.12	12.14	12.15	0.98	0.87	0.87	0.87
WDC3_150m	150m	12.06	7.97	8.01	8.03	0.67	0.65	0.66	0.66	13.77	12.11	12.13	12.14	0.98	0.87	0.87	0.87
WDC3_160m	160m	11.98	7.97	8.00	8.02	0.67	0.65	0.66	0.66	13.75	12.11	12.13	12.13	0.98	0.86	0.87	0.87
WDC3_170m	170m	11.91	7.96	7.99	8.01	0.66	0.65	0.66	0.66	13.74	12.10	12.12	12.13	0.98	0.86	0.87	0.87
WDC3_180m	180m	11.85	7.95	7.98	8.00	0.66	0.65	0.66	0.66	13.73	12.10	12.12	12.12	0.98	0.86	0.87	0.87
WDC3_190m	190m	11.79	7.95	7.98	7.99	0.66	0.65	0.65	0.66	13.72	12.10	12.11	12.12	0.98	0.86	0.87	0.87
WDC3_200m	200m	11.74	7.94	7.97	7.99	0.66	0.65	0.65	0.66	13.71	12.09	12.11	12.12	0.98	0.86	0.86	0.87
WDC4_1m	1m	35.55	10.29	10.80	11.03	1.17	0.95	1.02	1.05	18.14	13.85	14.22	14.39	1.30	0.99	1.02	1.03
WDC4_10m	10m	19.69	8.73	8.92	9.00	0.82	0.75	0.77	0.78	15.16	12.65	12.78	12.84	1.08	0.90	0.91	0.92
WDC4_20m	20m	16.02	8.36	8.48	8.53	0.75	0.70	0.71	0.72	14.48	12.38	12.46	12.49	1.03	0.88	0.89	0.89
WDC4_30m	30m	14.51	8.22	8.30	8.34	0.71	0.68	0.69	0.70	14.20	12.28	12.33	12.35	1.01	0.88	0.88	0.88
WDC4_40m	40m	13.67	8.13	8.20	8.23	0.70	0.67	0.68	0.68	14.05	12.22	12.26	12.28	1.00	0.87	0.88	0.88

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC4_50m	50m	13.14	8.08	8.14	8.16	0.69	0.67	0.67	0.67	13.96	12.18	12.22	12.23	1.00	0.87	0.87	0.87
WDC4_60m	60m	12.77	8.04	8.09	8.12	0.68	0.66	0.67	0.67	13.89	12.16	12.19	12.20	0.99	0.87	0.87	0.87
WDC4_70m	70m	12.50	8.02	8.06	8.08	0.68	0.66	0.66	0.67	13.85	12.14	12.17	12.18	0.99	0.87	0.87	0.87
WDC4_80m	80m	12.30	8.00	8.04	8.06	0.67	0.66	0.66	0.66	13.81	12.13	12.15	12.16	0.99	0.87	0.87	0.87
WDC4_90m	90m	12.14	7.98	8.02	8.04	0.67	0.66	0.66	0.66	13.78	12.12	12.14	12.15	0.98	0.87	0.87	0.87
WDC4_100m	100m	12.01	7.97	8.00	8.02	0.67	0.65	0.66	0.66	13.76	12.11	12.13	12.14	0.98	0.87	0.87	0.87
WDC4_110m	110m	11.90	7.96	7.99	8.01	0.66	0.65	0.66	0.66	13.74	12.10	12.12	12.13	0.98	0.86	0.87	0.87
WDC4_120m	120m	11.81	7.95	7.98	7.99	0.66	0.65	0.65	0.66	13.73	12.10	12.11	12.12	0.98	0.86	0.87	0.87
WDC4_130m	130m	11.73	7.94	7.97	7.98	0.66	0.65	0.65	0.66	13.71	12.09	12.11	12.12	0.98	0.86	0.86	0.87
WDC4_140m	140m	11.67	7.94	7.96	7.98	0.66	0.65	0.65	0.65	13.70	12.09	12.10	12.11	0.98	0.86	0.86	0.87
WDC4_150m	150m	11.61	7.93	7.95	7.97	0.66	0.65	0.65	0.65	13.69	12.09	12.10	12.11	0.98	0.86	0.86	0.86
WDC4_160m	160m	11.56	7.92	7.95	7.96	0.66	0.65	0.65	0.65	13.68	12.08	12.10	12.10	0.98	0.86	0.86	0.86
WDC4_170m	170m	11.52	7.92	7.94	7.96	0.66	0.65	0.65	0.65	13.68	12.08	12.09	12.10	0.98	0.86	0.86	0.86
WDC4_180m	180m	11.47	7.92	7.94	7.95	0.66	0.65	0.65	0.65	13.67	12.08	12.09	12.10	0.98	0.86	0.86	0.86
WDC4_190m	190m	11.44	7.91	7.93	7.95	0.66	0.65	0.65	0.65	13.66	12.08	12.09	12.09	0.98	0.86	0.86	0.86
WDC4_200m	200m	11.40	7.91	7.93	7.94	0.66	0.65	0.65	0.65	13.66	12.08	12.09	12.09	0.98	0.86	0.86	0.86
WDC5_1m	1m	34.33	10.15	10.60	10.90	1.25	0.94	1.00	1.04	18.74	14.03	14.38	14.60	1.34	1.00	1.03	1.04
WDC5_10m	10m	19.68	8.76	8.94	9.05	0.86	0.75	0.77	0.78	15.64	12.93	13.06	13.14	1.12	0.92	0.93	0.94
WDC5_20m	20m	16.10	8.41	8.53	8.60	0.77	0.70	0.72	0.72	14.88	12.67	12.74	12.79	1.06	0.90	0.91	0.91
WDC5_30m	30m	14.57	8.27	8.35	8.41	0.73	0.68	0.69	0.70	14.57	12.56	12.61	12.65	1.04	0.90	0.90	0.90
WDC5_40m	40m	13.73	8.19	8.25	8.30	0.71	0.67	0.68	0.69	14.40	12.50	12.54	12.57	1.03	0.89	0.90	0.90
WDC5_50m	50m	13.20	8.14	8.19	8.23	0.70	0.67	0.67	0.68	14.29	12.47	12.50	12.52	1.02	0.89	0.89	0.89
WDC5_60m	60m	12.82	8.10	8.15	8.18	0.69	0.66	0.67	0.67	14.22	12.44	12.47	12.49	1.02	0.89	0.89	0.89

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		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC5_70m	70m	12.55	8.08	8.12	8.15	0.68	0.66	0.66	0.67	14.16	12.42	12.45	12.46	1.01	0.89	0.89	0.89
WDC5_80m	80m	12.35	8.06	8.10	8.12	0.68	0.66	0.66	0.66	14.12	12.41	12.43	12.45	1.01	0.89	0.89	0.89
WDC5_90m	90m	12.18	8.04	8.08	8.10	0.67	0.66	0.66	0.66	14.09	12.40	12.42	12.43	1.01	0.89	0.89	0.89
WDC5_100m	100m	12.05	8.03	8.06	8.09	0.67	0.65	0.66	0.66	14.06	12.39	12.41	12.42	1.00	0.89	0.89	0.89
WDC5_110m	110m	11.94	8.02	8.05	8.07	0.67	0.65	0.66	0.66	14.04	12.38	12.40	12.41	1.00	0.88	0.89	0.89
WDC5_120m	120m	11.85	8.01	8.04	8.06	0.67	0.65	0.66	0.66	14.02	12.38	12.39	12.40	1.00	0.88	0.89	0.89
WDC5_130m	130m	11.77	8.00	8.03	8.05	0.67	0.65	0.65	0.66	14.01	12.37	12.39	12.40	1.00	0.88	0.88	0.89
WDC5_140m	140m	11.71	8.00	8.02	8.04	0.66	0.65	0.65	0.66	14.00	12.37	12.38	12.39	1.00	0.88	0.88	0.89
WDC5_150m	150m	11.65	7.99	8.02	8.03	0.66	0.65	0.65	0.65	13.98	12.37	12.38	12.39	1.00	0.88	0.88	0.88
WDC5_160m	160m	11.60	7.99	8.01	8.03	0.66	0.65	0.65	0.65	13.97	12.36	12.38	12.38	1.00	0.88	0.88	0.88
WDC5_170m	170m	11.55	7.98	8.00	8.02	0.66	0.65	0.65	0.65	13.97	12.36	12.37	12.38	1.00	0.88	0.88	0.88
WDC5_180m	180m	11.51	7.98	8.00	8.02	0.66	0.65	0.65	0.65	13.96	12.36	12.37	12.38	1.00	0.88	0.88	0.88
WDC5_190m	190m	11.48	7.97	8.00	8.01	0.66	0.65	0.65	0.65	13.95	12.36	12.37	12.37	1.00	0.88	0.88	0.88
WDC5_200m	200m	11.44	7.97	7.99	8.01	0.66	0.65	0.65	0.65	13.95	12.35	12.36	12.37	1.00	0.88	0.88	0.88
WDC6_1m	1m	28.24	9.57	9.92	10.15	1.09	0.86	0.91	0.93	17.47	13.57	13.84	14.00	1.25	0.97	0.99	1.00
WDC6_10m	10m	16.73	8.47	8.60	8.68	0.79	0.71	0.73	0.74	15.03	12.72	12.81	12.86	1.07	0.91	0.91	0.92
WDC6_20m	20m	14.21	8.24	8.31	8.36	0.72	0.68	0.69	0.69	14.51	12.54	12.59	12.62	1.04	0.90	0.90	0.90
WDC6_30m	30m	13.18	8.14	8.19	8.23	0.70	0.67	0.67	0.68	14.29	12.47	12.50	12.53	1.02	0.89	0.89	0.89
WDC6_40m	40m	12.62	8.08	8.13	8.16	0.69	0.66	0.67	0.67	14.18	12.43	12.46	12.48	1.01	0.89	0.89	0.89
WDC6_50m	50m	12.26	8.05	8.09	8.11	0.68	0.66	0.66	0.66	14.11	12.41	12.43	12.44	1.01	0.89	0.89	0.89
WDC6_60m	60m	12.02	8.03	8.06	8.08	0.67	0.65	0.66	0.66	14.06	12.39	12.41	12.42	1.00	0.89	0.89	0.89
WDC6_70m	70m	11.85	8.01	8.04	8.06	0.67	0.65	0.66	0.66	14.03	12.38	12.40	12.41	1.00	0.88	0.89	0.89
WDC6_80m	80m	11.71	8.00	8.02	8.04	0.66	0.65	0.65	0.66	14.00	12.37	12.38	12.40	1.00	0.88	0.88	0.89

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC6_90m	90m	11.61	7.99	8.01	8.03	0.66	0.65	0.65	0.65	13.98	12.36	12.38	12.39	1.00	0.88	0.88	0.88
WDC6_100m	100m	11.52	7.98	8.00	8.02	0.66	0.65	0.65	0.65	13.97	12.36	12.37	12.38	1.00	0.88	0.88	0.88
WDC6_110m	110m	11.45	7.97	7.99	8.01	0.66	0.65	0.65	0.65	13.95	12.36	12.37	12.37	1.00	0.88	0.88	0.88
WDC6_120m	120m	11.39	7.97	7.99	8.00	0.66	0.65	0.65	0.65	13.94	12.35	12.36	12.37	1.00	0.88	0.88	0.88
WDC6_130m	130m	11.34	7.96	7.98	8.00	0.66	0.65	0.65	0.65	13.93	12.35	12.36	12.37	1.00	0.88	0.88	0.88
WDC6_140m	140m	11.30	7.96	7.98	7.99	0.66	0.65	0.65	0.65	13.92	12.35	12.35	12.36	0.99	0.88	0.88	0.88
WDC6_150m	150m	11.26	7.95	7.97	7.99	0.66	0.65	0.65	0.65	13.92	12.34	12.35	12.36	0.99	0.88	0.88	0.88
WDC6_160m	160m	11.23	7.95	7.97	7.98	0.65	0.65	0.65	0.65	13.91	12.34	12.35	12.36	0.99	0.88	0.88	0.88
WDC6_170m	170m	11.20	7.95	7.96	7.98	0.65	0.65	0.65	0.65	13.91	12.34	12.35	12.35	0.99	0.88	0.88	0.88
WDC6_180m	180m	11.17	7.95	7.96	7.97	0.65	0.65	0.65	0.65	13.90	12.34	12.35	12.35	0.99	0.88	0.88	0.88
WDC6_190m	190m	11.15	7.94	7.96	7.97	0.65	0.65	0.65	0.65	13.90	12.34	12.34	12.35	0.99	0.88	0.88	0.88
WDC6_200m	200m	11.13	7.94	7.96	7.97	0.65	0.65	0.65	0.65	13.89	12.34	12.34	12.35	0.99	0.88	0.88	0.88
WDC7_1m	1m	25.48	9.31	9.61	9.62	1.24	0.83	0.86	0.87	18.20	13.53	13.75	13.76	1.30	0.97	0.98	0.98
WDC7_10m	10m	15.63	8.36	8.46	8.47	0.83	0.70	0.71	0.71	15.32	12.80	12.87	12.87	1.09	0.91	0.92	0.92
WDC7_20m	20m	13.58	8.16	8.23	8.24	0.75	0.67	0.68	0.68	14.73	12.65	12.69	12.69	1.05	0.90	0.91	0.91
WDC7_30m	30m	12.75	8.08	8.13	8.14	0.72	0.66	0.67	0.67	14.49	12.59	12.62	12.62	1.04	0.90	0.90	0.90
WDC7_40m	40m	12.29	8.04	8.08	8.09	0.70	0.66	0.66	0.66	14.37	12.56	12.58	12.59	1.03	0.90	0.90	0.90
WDC7_50m	50m	12.01	8.01	8.04	8.05	0.69	0.65	0.66	0.66	14.29	12.54	12.56	12.56	1.02	0.90	0.90	0.90
WDC7_60m	60m	11.82	7.99	8.02	8.03	0.68	0.65	0.66	0.66	14.24	12.53	12.54	12.55	1.02	0.89	0.90	0.90
WDC7_70m	70m	11.68	7.98	8.00	8.01	0.67	0.65	0.65	0.65	14.20	12.52	12.53	12.54	1.01	0.89	0.90	0.90
WDC7_80m	80m	11.57	7.97	7.99	8.00	0.67	0.65	0.65	0.65	14.17	12.51	12.52	12.53	1.01	0.89	0.89	0.89
WDC7_90m	90m	11.49	7.96	7.98	7.99	0.67	0.65	0.65	0.65	14.15	12.51	12.52	12.52	1.01	0.89	0.89	0.89
WDC7_100m	100m	11.42	7.95	7.97	7.98	0.67	0.65	0.65	0.65	14.13	12.50	12.51	12.52	1.01	0.89	0.89	0.89

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC7_110m	110m	11.37	7.95	7.97	7.98	0.66	0.65	0.65	0.65	14.12	12.50	12.51	12.51	1.01	0.89	0.89	0.89
WDC7_120m	120m	11.32	7.95	7.96	7.97	0.66	0.65	0.65	0.65	14.11	12.50	12.51	12.51	1.01	0.89	0.89	0.89
WDC7_130m	130m	11.29	7.94	7.96	7.97	0.66	0.65	0.65	0.65	14.10	12.50	12.50	12.51	1.01	0.89	0.89	0.89
WDC7_140m	140m	11.25	7.94	7.96	7.97	0.66	0.65	0.65	0.65	14.09	12.49	12.50	12.51	1.01	0.89	0.89	0.89
WDC7_150m	150m	11.23	7.94	7.95	7.96	0.66	0.65	0.65	0.65	14.08	12.49	12.50	12.50	1.01	0.89	0.89	0.89
WDC7_160m	160m	11.20	7.93	7.95	7.96	0.66	0.65	0.65	0.65	14.07	12.49	12.50	12.50	1.01	0.89	0.89	0.89
WDC7_170m	170m	11.18	7.93	7.95	7.96	0.66	0.65	0.65	0.65	14.07	12.49	12.50	12.50	1.00	0.89	0.89	0.89
WDC7_180m	180m	11.16	7.93	7.94	7.95	0.66	0.65	0.65	0.65	14.06	12.49	12.49	12.50	1.00	0.89	0.89	0.89
WDC7_190m	190m	11.15	7.93	7.94	7.95	0.66	0.65	0.65	0.65	14.06	12.49	12.49	12.50	1.00	0.89	0.89	0.89
WDC7_200m	200m	11.13	7.93	7.94	7.95	0.65	0.65	0.65	0.65	14.06	12.49	12.49	12.50	1.00	0.89	0.89	0.89
WDC8_1m	1m	27.77	9.53	9.86	9.88	1.32	0.85	0.90	0.90	18.75	13.69	13.93	13.94	1.34	0.98	1.00	1.00
WDC8_10m	10m	16.40	8.43	8.55	8.56	0.86	0.71	0.72	0.72	15.50	12.84	12.92	12.93	1.11	0.92	0.92	0.92
WDC8_20m	20m	14.02	8.21	8.28	8.29	0.76	0.68	0.69	0.69	14.83	12.67	12.72	12.72	1.06	0.91	0.91	0.91
WDC8_30m	30m	13.04	8.11	8.16	8.17	0.72	0.67	0.67	0.67	14.56	12.61	12.64	12.64	1.04	0.90	0.90	0.90
WDC8_40m	40m	12.51	8.06	8.10	8.11	0.70	0.66	0.66	0.66	14.42	12.57	12.59	12.60	1.03	0.90	0.90	0.90
WDC8_50m	50m	12.17	8.03	8.06	8.07	0.69	0.66	0.66	0.66	14.33	12.55	12.57	12.57	1.02	0.90	0.90	0.90
WDC8_60m	60m	11.93	8.00	8.03	8.04	0.68	0.65	0.66	0.66	14.26	12.53	12.55	12.55	1.02	0.90	0.90	0.90
WDC8_70m	70m	11.76	7.99	8.01	8.02	0.68	0.65	0.65	0.65	14.22	12.52	12.54	12.54	1.02	0.89	0.90	0.90
WDC8_80m	80m	11.63	7.97	8.00	8.01	0.67	0.65	0.65	0.65	14.19	12.51	12.53	12.53	1.01	0.89	0.89	0.90
WDC8_90m	90m	11.53	7.97	7.99	8.00	0.67	0.65	0.65	0.65	14.16	12.51	12.52	12.52	1.01	0.89	0.89	0.89
WDC8_100m	100m	11.44	7.96	7.98	7.99	0.67	0.65	0.65	0.65	14.14	12.50	12.51	12.52	1.01	0.89	0.89	0.89
WDC8_110m	110m	11.38	7.95	7.97	7.98	0.66	0.65	0.65	0.65	14.12	12.50	12.51	12.51	1.01	0.89	0.89	0.89
WDC8_120m	120m	11.32	7.95	7.96	7.97	0.66	0.65	0.65	0.65	14.11	12.50	12.51	12.51	1.01	0.89	0.89	0.89

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC8_130m	130m	11.27	7.94	7.96	7.97	0.66	0.65	0.65	0.65	14.10	12.49	12.50	12.51	1.01	0.89	0.89	0.89
WDC8_140m	140m	11.23	7.94	7.95	7.96	0.66	0.65	0.65	0.65	14.09	12.49	12.50	12.50	1.01	0.89	0.89	0.89
WDC8_150m	150m	11.19	7.93	7.95	7.96	0.66	0.65	0.65	0.65	14.08	12.49	12.50	12.50	1.01	0.89	0.89	0.89
WDC8_160m	160m	11.16	7.93	7.94	7.95	0.66	0.65	0.65	0.65	14.07	12.49	12.49	12.50	1.01	0.89	0.89	0.89
WDC8_170m	170m	11.13	7.93	7.94	7.95	0.66	0.65	0.65	0.65	14.07	12.49	12.49	12.50	1.00	0.89	0.89	0.89
WDC8_180m	180m	11.11	7.92	7.94	7.95	0.66	0.65	0.65	0.65	14.06	12.48	12.49	12.49	1.00	0.89	0.89	0.89
WDC8_190m	190m	11.09	7.92	7.94	7.95	0.66	0.64	0.65	0.65	14.06	12.48	12.49	12.49	1.00	0.89	0.89	0.89
WDC8_200m	200m	11.07	7.92	7.93	7.94	0.66	0.64	0.65	0.65	14.05	12.48	12.49	12.49	1.00	0.89	0.89	0.89
WDC9_1m	1m	44.49	11.26	11.95	12.37	1.38	1.07	1.15	1.20	19.67	14.35	14.84	15.15	1.40	1.02	1.06	1.08
WDC9_10m	10m	23.47	9.15	9.42	9.59	0.91	0.79	0.82	0.84	15.73	12.76	12.95	13.06	1.12	0.91	0.92	0.93
WDC9_20m	20m	18.39	8.63	8.80	8.91	0.80	0.73	0.75	0.76	14.77	12.39	12.50	12.57	1.06	0.89	0.89	0.90
WDC9_30m	30m	16.24	8.42	8.54	8.62	0.75	0.70	0.71	0.72	14.37	12.24	12.31	12.36	1.03	0.87	0.88	0.88
WDC9_40m	40m	15.06	8.30	8.40	8.46	0.73	0.69	0.70	0.70	14.16	12.16	12.22	12.26	1.01	0.87	0.87	0.88
WDC9_50m	50m	14.31	8.22	8.31	8.36	0.71	0.68	0.69	0.69	14.02	12.11	12.15	12.19	1.00	0.86	0.87	0.87
WDC9_60m	60m	13.79	8.17	8.24	8.29	0.70	0.67	0.68	0.68	13.93	12.07	12.11	12.14	0.99	0.86	0.87	0.87
WDC9_70m	70m	13.41	8.13	8.20	8.24	0.69	0.67	0.68	0.68	13.86	12.05	12.08	12.11	0.99	0.86	0.86	0.86
WDC9_80m	80m	13.12	8.10	8.16	8.20	0.69	0.67	0.67	0.67	13.81	12.03	12.06	12.08	0.99	0.86	0.86	0.86
WDC9_90m	90m	12.89	8.08	8.13	8.17	0.68	0.66	0.67	0.67	13.77	12.01	12.04	12.06	0.98	0.86	0.86	0.86
WDC9_100m	100m	12.71	8.06	8.11	8.15	0.68	0.66	0.67	0.67	13.73	12.00	12.03	12.05	0.98	0.86	0.86	0.86
WDC9_110m	110m	12.55	8.05	8.09	8.13	0.68	0.66	0.66	0.67	13.71	11.99	12.01	12.03	0.98	0.86	0.86	0.86
WDC9_120m	120m	12.42	8.03	8.08	8.11	0.68	0.66	0.66	0.66	13.69	11.98	12.00	12.02	0.98	0.86	0.86	0.86
WDC9_130m	130m	12.31	8.02	8.06	8.09	0.67	0.66	0.66	0.66	13.67	11.98	12.00	12.01	0.98	0.86	0.86	0.86
WDC9_140m	140m	12.21	8.01	8.05	8.08	0.67	0.66	0.66	0.66	13.65	11.97	11.99	12.01	0.97	0.85	0.86	0.86

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		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC9_150m	150m	12.13	8.00	8.04	8.07	0.67	0.66	0.66	0.66	13.63	11.96	11.98	12.00	0.97	0.85	0.86	0.86
WDC9_160m	160m	12.05	8.00	8.03	8.06	0.67	0.65	0.66	0.66	13.62	11.96	11.98	11.99	0.97	0.85	0.86	0.86
WDC9_170m	170m	11.99	7.99	8.02	8.05	0.67	0.65	0.66	0.66	13.61	11.96	11.97	11.99	0.97	0.85	0.86	0.86
WDC9_180m	180m	11.93	7.98	8.02	8.04	0.67	0.65	0.66	0.66	13.60	11.95	11.97	11.98	0.97	0.85	0.85	0.86
WDC9_190m	190m	11.87	7.98	8.01	8.03	0.67	0.65	0.66	0.66	13.59	11.95	11.96	11.98	0.97	0.85	0.85	0.86
WDC9_200m	200m	11.83	7.97	8.00	8.03	0.66	0.65	0.65	0.66	13.58	11.95	11.96	11.97	0.97	0.85	0.85	0.86
WDC10_1m	1m	33.75	10.18	10.65	10.94	1.14	0.93	0.99	1.02	17.69	13.55	13.88	14.09	1.26	0.97	0.99	1.01
WDC10_10m	10m	19.01	8.70	8.87	8.99	0.81	0.74	0.76	0.77	14.90	12.44	12.56	12.64	1.06	0.89	0.90	0.90
WDC10_20m	20m	15.72	8.37	8.47	8.55	0.74	0.70	0.71	0.72	14.28	12.21	12.27	12.32	1.02	0.87	0.88	0.88
WDC10_30m	30m	14.32	8.23	8.31	8.36	0.71	0.68	0.69	0.69	14.03	12.11	12.16	12.19	1.00	0.86	0.87	0.87
WDC10_40m	40m	13.55	8.15	8.21	8.26	0.70	0.67	0.68	0.68	13.89	12.06	12.10	12.12	0.99	0.86	0.86	0.87
WDC10_50m	50m	13.06	8.10	8.15	8.19	0.69	0.67	0.67	0.67	13.80	12.02	12.06	12.08	0.99	0.86	0.86	0.86
WDC10_60m	60m	12.71	8.06	8.11	8.15	0.68	0.66	0.67	0.67	13.74	12.00	12.03	12.05	0.98	0.86	0.86	0.86
WDC10_70m	70m	12.46	8.04	8.08	8.11	0.68	0.66	0.66	0.67	13.70	11.99	12.01	12.03	0.98	0.86	0.86	0.86
WDC10_80m	80m	12.26	8.02	8.06	8.09	0.67	0.66	0.66	0.66	13.67	11.97	11.99	12.01	0.98	0.86	0.86	0.86
WDC10_90m	90m	12.11	8.00	8.04	8.07	0.67	0.66	0.66	0.66	13.64	11.96	11.98	12.00	0.97	0.85	0.86	0.86
WDC10_100m	100m	11.98	7.99	8.02	8.05	0.67	0.65	0.66	0.66	13.62	11.96	11.97	11.99	0.97	0.85	0.86	0.86
WDC10_110m	110m	11.87	7.98	8.01	8.03	0.67	0.65	0.66	0.66	13.60	11.95	11.97	11.98	0.97	0.85	0.85	0.86
WDC10_120m	120m	11.78	7.97	8.00	8.02	0.67	0.65	0.65	0.66	13.58	11.94	11.96	11.97	0.97	0.85	0.85	0.86
WDC10_130m	130m	11.70	7.96	7.99	8.01	0.66	0.65	0.65	0.66	13.57	11.94	11.95	11.96	0.97	0.85	0.85	0.85
WDC10_140m	140m	11.63	7.95	7.98	8.00	0.66	0.65	0.65	0.65	13.56	11.94	11.95	11.96	0.97	0.85	0.85	0.85
WDC10_150m	150m	11.57	7.95	7.97	7.99	0.66	0.65	0.65	0.65	13.55	11.93	11.94	11.95	0.97	0.85	0.85	0.85
WDC10_160m	160m	11.51	7.94	7.97	7.99	0.66	0.65	0.65	0.65	13.54	11.93	11.94	11.95	0.97	0.85	0.85	0.85

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC10_170m	170m	11.47	7.94	7.96	7.98	0.66	0.65	0.65	0.65	13.53	11.93	11.94	11.95	0.97	0.85	0.85	0.85
WDC10_180m	180m	11.42	7.93	7.95	7.97	0.66	0.65	0.65	0.65	13.53	11.92	11.93	11.94	0.97	0.85	0.85	0.85
WDC10_190m	190m	11.38	7.93	7.95	7.97	0.66	0.65	0.65	0.65	13.52	11.92	11.93	11.94	0.97	0.85	0.85	0.85
WDC10_200m	200m	11.34	7.93	7.94	7.96	0.66	0.65	0.65	0.65	13.52	11.92	11.93	11.94	0.97	0.85	0.85	0.85
WDC11_1m	1m	29.73	9.80	10.20	10.29	1.12	0.89	0.94	0.95	17.40	13.43	13.72	13.78	1.24	0.96	0.98	0.98
WDC11_10m	10m	18.05	8.59	8.75	8.79	0.82	0.73	0.75	0.75	14.98	12.53	12.64	12.67	1.07	0.90	0.90	0.90
WDC11_20m	20m	15.15	8.29	8.39	8.42	0.74	0.69	0.70	0.71	14.38	12.31	12.38	12.39	1.03	0.88	0.88	0.89
WDC11_30m	30m	13.91	8.16	8.24	8.26	0.72	0.68	0.69	0.69	14.13	12.22	12.27	12.28	1.01	0.87	0.88	0.88
WDC11_40m	40m	13.23	8.09	8.15	8.17	0.70	0.67	0.68	0.68	14.00	12.17	12.21	12.22	1.00	0.87	0.87	0.87
WDC11_50m	50m	12.79	8.05	8.10	8.11	0.69	0.66	0.67	0.67	13.91	12.14	12.17	12.18	0.99	0.87	0.87	0.87
WDC11_60m	60m	12.49	8.01	8.06	8.07	0.68	0.66	0.66	0.67	13.85	12.12	12.15	12.16	0.99	0.87	0.87	0.87
WDC11_70m	70m	12.27	7.99	8.03	8.05	0.68	0.66	0.66	0.66	13.81	12.11	12.13	12.14	0.99	0.86	0.87	0.87
WDC11_80m	80m	12.10	7.97	8.01	8.02	0.67	0.66	0.66	0.66	13.78	12.10	12.12	12.12	0.98	0.86	0.87	0.87
WDC11_90m	90m	11.97	7.96	7.99	8.01	0.67	0.65	0.66	0.66	13.75	12.09	12.11	12.11	0.98	0.86	0.86	0.87
WDC11_100m	100m	11.86	7.95	7.98	7.99	0.67	0.65	0.66	0.66	13.73	12.08	12.10	12.10	0.98	0.86	0.86	0.86
WDC11_110m	110m	11.77	7.94	7.97	7.98	0.67	0.65	0.65	0.66	13.71	12.07	12.09	12.10	0.98	0.86	0.86	0.86
WDC11_120m	120m	11.70	7.93	7.96	7.97	0.66	0.65	0.65	0.65	13.70	12.07	12.08	12.09	0.98	0.86	0.86	0.86
WDC11_130m	130m	11.63	7.93	7.95	7.96	0.66	0.65	0.65	0.65	13.69	12.07	12.08	12.08	0.98	0.86	0.86	0.86
WDC11_140m	140m	11.58	7.92	7.95	7.96	0.66	0.65	0.65	0.65	13.68	12.06	12.07	12.08	0.98	0.86	0.86	0.86
WDC11_150m	150m	11.53	7.92	7.94	7.95	0.66	0.65	0.65	0.65	13.67	12.06	12.07	12.08	0.98	0.86	0.86	0.86
WDC11_160m	160m	11.49	7.91	7.93	7.95	0.66	0.65	0.65	0.65	13.66	12.06	12.07	12.07	0.98	0.86	0.86	0.86
WDC11_170m	170m	11.45	7.91	7.93	7.94	0.66	0.65	0.65	0.65	13.65	12.05	12.06	12.07	0.98	0.86	0.86	0.86
WDC11_180m	180m	11.41	7.90	7.93	7.94	0.66	0.65	0.65	0.65	13.65	12.05	12.06	12.07	0.97	0.86	0.86	0.86

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC11_190m	190m	11.38	7.90	7.92	7.93	0.66	0.65	0.65	0.65	13.64	12.05	12.06	12.06	0.97	0.86	0.86	0.86
WDC11_200m	200m	11.36	7.90	7.92	7.93	0.66	0.65	0.65	0.65	13.63	12.05	12.06	12.06	0.97	0.86	0.86	0.86
WDC12_1m	1m	24.53	9.26	9.55	9.62	0.98	0.82	0.85	0.86	16.31	13.02	13.23	13.28	1.17	0.93	0.94	0.95
WDC12_10m	10m	15.50	8.33	8.43	8.46	0.75	0.70	0.71	0.71	14.46	12.34	12.41	12.43	1.03	0.88	0.89	0.89
WDC12_20m	20m	13.60	8.13	8.20	8.22	0.71	0.67	0.68	0.68	14.07	12.20	12.24	12.25	1.01	0.87	0.87	0.88
WDC12_30m	30m	12.82	8.05	8.10	8.12	0.69	0.66	0.67	0.67	13.92	12.15	12.17	12.18	0.99	0.87	0.87	0.87
WDC12_40m	40m	12.39	8.00	8.05	8.06	0.68	0.66	0.66	0.66	13.83	12.11	12.14	12.15	0.99	0.87	0.87	0.87
WDC12_50m	50m	12.12	7.98	8.01	8.03	0.67	0.66	0.66	0.66	13.78	12.10	12.12	12.12	0.98	0.86	0.87	0.87
WDC12_60m	60m	11.93	7.96	7.99	8.00	0.67	0.65	0.66	0.66	13.74	12.08	12.10	12.11	0.98	0.86	0.86	0.86
WDC12_70m	70m	11.79	7.94	7.97	7.98	0.67	0.65	0.66	0.66	13.71	12.07	12.09	12.10	0.98	0.86	0.86	0.86
WDC12_80m	80m	11.68	7.93	7.96	7.97	0.66	0.65	0.65	0.65	13.70	12.07	12.08	12.09	0.98	0.86	0.86	0.86
WDC12_90m	90m	11.60	7.92	7.95	7.96	0.66	0.65	0.65	0.65	13.68	12.06	12.07	12.08	0.98	0.86	0.86	0.86
WDC12_100m	100m	11.53	7.92	7.94	7.95	0.66	0.65	0.65	0.65	13.67	12.06	12.07	12.07	0.98	0.86	0.86	0.86
WDC12_110m	110m	11.47	7.91	7.93	7.94	0.66	0.65	0.65	0.65	13.66	12.05	12.06	12.07	0.98	0.86	0.86	0.86
WDC12_120m	120m	11.42	7.90	7.93	7.94	0.66	0.65	0.65	0.65	13.65	12.05	12.06	12.07	0.97	0.86	0.86	0.86
WDC12_130m	130m	11.37	7.90	7.92	7.93	0.66	0.65	0.65	0.65	13.64	12.05	12.06	12.06	0.97	0.86	0.86	0.86
WDC12_140m	140m	11.33	7.90	7.91	7.93	0.66	0.65	0.65	0.65	13.63	12.05	12.05	12.06	0.97	0.86	0.86	0.86
WDC12_150m	150m	11.30	7.89	7.91	7.92	0.66	0.65	0.65	0.65	13.63	12.04	12.05	12.06	0.97	0.86	0.86	0.86
WDC12_160m	160m	11.27	7.89	7.91	7.92	0.66	0.65	0.65	0.65	13.62	12.04	12.05	12.05	0.97	0.86	0.86	0.86
WDC12_170m	170m	11.24	7.89	7.90	7.91	0.66	0.65	0.65	0.65	13.62	12.04	12.05	12.05	0.97	0.86	0.86	0.86
WDC12_180m	180m	11.21	7.88	7.90	7.91	0.66	0.65	0.65	0.65	13.61	12.04	12.05	12.05	0.97	0.86	0.86	0.86
WDC12_190m	190m	11.19	7.88	7.90	7.91	0.65	0.65	0.65	0.65	13.61	12.04	12.04	12.05	0.97	0.86	0.86	0.86
WDC12_200m	200m	11.17	7.88	7.89	7.91	0.65	0.65	0.65	0.65	13.60	12.04	12.04	12.05	0.97	0.86	0.86	0.86

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC13_1m	1m	63.67	13.32	14.37	17.27	2.06	1.38	1.52	1.92	24.99	16.65	17.48	19.79	1.78	1.19	1.25	1.41
WDC13_10m	10m	32.81	10.23	10.67	11.93	1.21	0.93	0.99	1.15	18.49	14.09	14.43	15.38	1.32	1.01	1.03	1.10
WDC13_20m	20m	24.27	9.37	9.65	10.43	0.97	0.81	0.85	0.94	16.67	13.40	13.61	14.18	1.19	0.96	0.97	1.01
WDC13_30m	30m	20.52	8.99	9.20	9.77	0.88	0.76	0.79	0.86	15.88	13.11	13.26	13.66	1.13	0.94	0.95	0.98
WDC13_40m	40m	18.39	8.78	8.94	9.40	0.82	0.73	0.75	0.81	15.44	12.95	13.06	13.38	1.10	0.92	0.93	0.96
WDC13_50m	50m	17.03	8.64	8.78	9.16	0.79	0.72	0.73	0.78	15.16	12.85	12.94	13.20	1.08	0.92	0.92	0.94
WDC13_60m	60m	16.07	8.55	8.66	8.99	0.77	0.70	0.72	0.75	14.97	12.78	12.85	13.07	1.07	0.91	0.92	0.93
WDC13_70m	70m	15.36	8.48	8.58	8.86	0.75	0.69	0.71	0.74	14.82	12.73	12.79	12.98	1.06	0.91	0.91	0.93
WDC13_80m	80m	14.82	8.42	8.51	8.77	0.74	0.69	0.70	0.73	14.71	12.69	12.74	12.91	1.05	0.91	0.91	0.92
WDC13_90m	90m	14.39	8.38	8.46	8.69	0.73	0.68	0.69	0.72	14.63	12.66	12.71	12.86	1.04	0.90	0.91	0.92
WDC13_100m	100m	14.04	8.34	8.42	8.63	0.72	0.68	0.69	0.71	14.56	12.63	12.68	12.81	1.04	0.90	0.91	0.92
WDC13_110m	110m	13.75	8.31	8.38	8.57	0.71	0.68	0.68	0.70	14.50	12.61	12.65	12.77	1.04	0.90	0.90	0.91
WDC13_120m	120m	13.50	8.29	8.35	8.53	0.70	0.67	0.68	0.70	14.45	12.59	12.63	12.74	1.03	0.90	0.90	0.91
WDC13_130m	130m	13.29	8.27	8.33	8.49	0.70	0.67	0.68	0.69	14.41	12.58	12.62	12.72	1.03	0.90	0.90	0.91
WDC13_140m	140m	13.11	8.25	8.30	8.46	0.70	0.67	0.67	0.69	14.38	12.57	12.60	12.69	1.03	0.90	0.90	0.91
WDC13_150m	150m	12.95	8.23	8.29	8.43	0.69	0.67	0.67	0.69	14.34	12.56	12.59	12.68	1.02	0.90	0.90	0.91
WDC13_160m	160m	12.81	8.22	8.27	8.40	0.69	0.66	0.67	0.68	14.32	12.55	12.58	12.66	1.02	0.90	0.90	0.90
WDC13_170m	170m	12.68	8.21	8.25	8.38	0.69	0.66	0.67	0.68	14.29	12.54	12.57	12.64	1.02	0.90	0.90	0.90
WDC13_180m	180m	12.57	8.19	8.24	8.36	0.68	0.66	0.67	0.68	14.27	12.53	12.56	12.63	1.02	0.90	0.90	0.90
WDC13_190m	190m	12.47	8.18	8.23	8.34	0.68	0.66	0.66	0.68	14.25	12.52	12.55	12.62	1.02	0.89	0.90	0.90
WDC13_200m	200m	12.38	8.18	8.22	8.33	0.68	0.66	0.66	0.67	14.23	12.52	12.54	12.61	1.02	0.89	0.90	0.90
WDC14_1m	1m	50.34	11.98	12.80	15.12	1.70	1.19	1.30	1.61	22.25	15.55	16.19	18.01	1.59	1.11	1.16	1.29
WDC14_10m	10m	25.74	9.52	9.84	10.74	1.02	0.84	0.88	0.99	17.02	13.54	13.78	14.45	1.22	0.97	0.98	1.03

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC14_20m	20m	19.61	8.90	9.09	9.64	0.86	0.75	0.77	0.84	15.72	13.05	13.19	13.57	1.12	0.93	0.94	0.97
WDC14_30m	30m	17.00	8.64	8.78	9.17	0.79	0.72	0.73	0.78	15.17	12.85	12.95	13.22	1.08	0.92	0.92	0.94
WDC14_40m	40m	15.55	8.49	8.60	8.91	0.76	0.70	0.71	0.75	14.87	12.74	12.82	13.02	1.06	0.91	0.92	0.93
WDC14_50m	50m	14.63	8.40	8.49	8.74	0.73	0.69	0.70	0.72	14.69	12.68	12.74	12.90	1.05	0.91	0.91	0.92
WDC14_60m	60m	13.99	8.34	8.41	8.62	0.72	0.68	0.69	0.71	14.56	12.63	12.68	12.82	1.04	0.90	0.91	0.92
WDC14_70m	70m	13.52	8.29	8.36	8.54	0.71	0.67	0.68	0.70	14.47	12.60	12.64	12.76	1.03	0.90	0.90	0.91
WDC14_80m	80m	13.17	8.25	8.31	8.47	0.70	0.67	0.67	0.69	14.39	12.57	12.61	12.71	1.03	0.90	0.90	0.91
WDC14_90m	90m	12.89	8.23	8.28	8.42	0.69	0.67	0.67	0.69	14.34	12.56	12.59	12.68	1.02	0.90	0.90	0.91
WDC14_100m	100m	12.67	8.20	8.25	8.38	0.69	0.66	0.67	0.68	14.30	12.54	12.57	12.65	1.02	0.90	0.90	0.90
WDC14_110m	110m	12.48	8.19	8.23	8.35	0.68	0.66	0.67	0.68	14.26	12.53	12.55	12.62	1.02	0.89	0.90	0.90
WDC14_120m	120m	12.33	8.17	8.21	8.32	0.68	0.66	0.66	0.67	14.23	12.52	12.54	12.61	1.02	0.89	0.90	0.90
WDC14_130m	130m	12.19	8.16	8.19	8.29	0.68	0.66	0.66	0.67	14.20	12.51	12.53	12.59	1.01	0.89	0.89	0.90
WDC14_140m	140m	12.08	8.15	8.18	8.27	0.67	0.66	0.66	0.67	14.18	12.50	12.52	12.58	1.01	0.89	0.89	0.90
WDC14_150m	150m	11.98	8.14	8.17	8.26	0.67	0.66	0.66	0.67	14.16	12.49	12.51	12.56	1.01	0.89	0.89	0.90
WDC14_160m	160m	11.89	8.13	8.16	8.24	0.67	0.65	0.66	0.67	14.15	12.49	12.51	12.55	1.01	0.89	0.89	0.90
WDC14_170m	170m	11.81	8.12	8.15	8.23	0.67	0.65	0.66	0.66	14.13	12.48	12.50	12.54	1.01	0.89	0.89	0.90
WDC14_180m	180m	11.74	8.11	8.14	8.21	0.67	0.65	0.66	0.66	14.12	12.48	12.49	12.54	1.01	0.89	0.89	0.90
WDC14_190m	190m	11.68	8.11	8.13	8.20	0.67	0.65	0.65	0.66	14.11	12.47	12.49	12.53	1.01	0.89	0.89	0.89
WDC14_200m	200m	11.62	8.10	8.12	8.19	0.66	0.65	0.65	0.66	14.10	12.47	12.48	12.52	1.01	0.89	0.89	0.89
WDC15_1m	1m	35.31	10.50	10.99	11.09	1.27	0.95	1.02	1.03	19.54	14.75	15.12	15.19	1.40	1.05	1.08	1.09
WDC15_10m	10m	19.66	8.96	9.14	9.19	0.86	0.75	0.77	0.78	16.26	13.57	13.70	13.73	1.16	0.97	0.98	0.98
WDC15_20m	20m	16.12	8.61	8.72	8.76	0.77	0.70	0.72	0.72	15.53	13.31	13.38	13.41	1.11	0.95	0.96	0.96
WDC15_30m	30m	14.59	8.46	8.54	8.57	0.73	0.68	0.69	0.70	15.21	13.20	13.25	13.27	1.09	0.94	0.95	0.95

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		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC15_40m	40m	13.75	8.37	8.44	8.47	0.71	0.67	0.68	0.68	15.05	13.14	13.18	13.20	1.07	0.94	0.94	0.94
WDC15_50m	50m	13.21	8.32	8.38	8.41	0.70	0.67	0.67	0.68	14.94	13.10	13.14	13.15	1.07	0.94	0.94	0.94
WDC15_60m	60m	12.83	8.28	8.33	8.36	0.69	0.66	0.67	0.67	14.86	13.08	13.11	13.12	1.06	0.93	0.94	0.94
WDC15_70m	70m	12.56	8.26	8.30	8.33	0.69	0.66	0.66	0.67	14.81	13.06	13.09	13.10	1.06	0.93	0.93	0.94
WDC15_80m	80m	12.35	8.24	8.28	8.30	0.68	0.66	0.66	0.66	14.77	13.05	13.07	13.08	1.05	0.93	0.93	0.93
WDC15_90m	90m	12.18	8.22	8.26	8.28	0.68	0.66	0.66	0.66	14.74	13.04	13.06	13.07	1.05	0.93	0.93	0.93
WDC15_100m	100m	12.05	8.21	8.24	8.27	0.67	0.65	0.66	0.66	14.71	13.03	13.05	13.06	1.05	0.93	0.93	0.93
WDC15_110m	110m	11.94	8.20	8.23	8.25	0.67	0.65	0.66	0.66	14.69	13.02	13.04	13.05	1.05	0.93	0.93	0.93
WDC15_120m	120m	11.85	8.19	8.22	8.24	0.67	0.65	0.66	0.66	14.67	13.02	13.03	13.04	1.05	0.93	0.93	0.93
WDC15_130m	130m	11.77	8.18	8.21	8.23	0.67	0.65	0.65	0.66	14.66	13.01	13.03	13.04	1.05	0.93	0.93	0.93
WDC15_140m	140m	11.70	8.17	8.20	8.22	0.67	0.65	0.65	0.66	14.65	13.01	13.02	13.03	1.05	0.93	0.93	0.93
WDC15_150m	150m	11.65	8.17	8.19	8.22	0.67	0.65	0.65	0.65	14.63	13.00	13.02	13.03	1.05	0.93	0.93	0.93
WDC15_160m	160m	11.59	8.16	8.19	8.21	0.66	0.65	0.65	0.65	14.62	13.00	13.01	13.02	1.04	0.93	0.93	0.93
WDC15_170m	170m	11.55	8.16	8.18	8.20	0.66	0.65	0.65	0.65	14.62	13.00	13.01	13.02	1.04	0.93	0.93	0.93
WDC15_180m	180m	11.51	8.15	8.18	8.20	0.66	0.65	0.65	0.65	14.61	12.99	13.01	13.02	1.04	0.93	0.93	0.93
WDC15_190m	190m	11.47	8.15	8.17	8.20	0.66	0.65	0.65	0.65	14.60	12.99	13.00	13.02	1.04	0.93	0.93	0.93
WDC15_200m	200m	11.44	8.15	8.17	8.19	0.66	0.65	0.65	0.65	14.60	12.99	13.00	13.01	1.04	0.93	0.93	0.93
WDC16_1m	1m	35.62	10.53	11.03	11.12	1.27	0.95	1.02	1.03	19.56	14.76	15.12	15.20	1.40	1.05	1.08	1.09
WDC16_10m	10m	19.44	8.94	9.12	9.17	0.85	0.74	0.76	0.77	16.20	13.54	13.67	13.70	1.16	0.97	0.98	0.98
WDC16_20m	20m	15.88	8.58	8.69	8.73	0.76	0.70	0.71	0.71	15.47	13.28	13.35	13.38	1.10	0.95	0.95	0.96
WDC16_30m	30m	14.38	8.44	8.52	8.55	0.73	0.68	0.69	0.69	15.16	13.18	13.23	13.25	1.08	0.94	0.94	0.95
WDC16_40m	40m	13.56	8.36	8.42	8.45	0.71	0.67	0.68	0.68	15.00	13.12	13.16	13.18	1.07	0.94	0.94	0.94
WDC16_50m	50m	13.04	8.30	8.36	8.38	0.70	0.67	0.67	0.67	14.90	13.09	13.12	13.13	1.06	0.93	0.94	0.94

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC16_60m	60m	12.68	8.27	8.31	8.34	0.69	0.66	0.67	0.67	14.83	13.07	13.09	13.11	1.06	0.93	0.94	0.94
WDC16_70m	70m	12.41	8.24	8.28	8.31	0.68	0.66	0.66	0.66	14.78	13.05	13.07	13.08	1.06	0.93	0.93	0.93
WDC16_80m	80m	12.21	8.22	8.26	8.28	0.68	0.66	0.66	0.66	14.74	13.04	13.06	13.07	1.05	0.93	0.93	0.93
WDC16_90m	90m	12.06	8.21	8.24	8.26	0.67	0.65	0.66	0.66	14.71	13.03	13.04	13.06	1.05	0.93	0.93	0.93
WDC16_100m	100m	11.93	8.20	8.22	8.25	0.67	0.65	0.66	0.66	14.69	13.02	13.04	13.05	1.05	0.93	0.93	0.93
WDC16_110m	110m	11.82	8.18	8.21	8.23	0.67	0.65	0.65	0.66	14.67	13.01	13.03	13.04	1.05	0.93	0.93	0.93
WDC16_120m	120m	11.73	8.18	8.20	8.22	0.67	0.65	0.65	0.66	14.65	13.01	13.02	13.03	1.05	0.93	0.93	0.93
WDC16_130m	130m	11.66	8.17	8.19	8.21	0.67	0.65	0.65	0.65	14.64	13.00	13.01	13.03	1.05	0.93	0.93	0.93
WDC16_140m	140m	11.59	8.16	8.18	8.21	0.66	0.65	0.65	0.65	14.62	13.00	13.01	13.02	1.04	0.93	0.93	0.93
WDC16_150m	150m	11.54	8.16	8.18	8.20	0.66	0.65	0.65	0.65	14.61	12.99	13.01	13.02	1.04	0.93	0.93	0.93
WDC16_160m	160m	11.49	8.15	8.17	8.19	0.66	0.65	0.65	0.65	14.60	12.99	13.00	13.01	1.04	0.93	0.93	0.93
WDC16_170m	170m	11.44	8.15	8.17	8.19	0.66	0.65	0.65	0.65	14.60	12.99	13.00	13.01	1.04	0.93	0.93	0.93
WDC16_180m	180m	11.40	8.14	8.16	8.18	0.66	0.65	0.65	0.65	14.59	12.99	13.00	13.01	1.04	0.93	0.93	0.93
WDC16_190m	190m	11.37	8.14	8.16	8.18	0.66	0.65	0.65	0.65	14.58	12.98	12.99	13.00	1.04	0.93	0.93	0.93
WDC16_200m	200m	11.33	8.14	8.15	8.17	0.66	0.65	0.65	0.65	14.58	12.98	12.99	13.00	1.04	0.93	0.93	0.93
WDC17_1m	1m	48.28	12.13	12.92	16.07	1.66	1.21	1.32	1.73	22.44	16.17	16.82	19.17	1.60	1.15	1.20	1.37
WDC17_10m	10m	24.52	9.67	9.98	11.19	1.00	0.84	0.88	1.02	17.32	14.05	14.29	15.14	1.24	1.00	1.02	1.08
WDC17_20m	20m	19.15	9.12	9.31	10.06	0.85	0.75	0.78	0.87	16.16	13.59	13.73	14.24	1.15	0.97	0.98	1.02
WDC17_30m	30m	16.88	8.89	9.02	9.58	0.79	0.72	0.74	0.80	15.68	13.40	13.50	13.87	1.12	0.96	0.96	0.99
WDC17_40m	40m	15.62	8.76	8.87	9.32	0.76	0.70	0.72	0.77	15.42	13.30	13.38	13.67	1.10	0.95	0.96	0.98
WDC17_50m	50m	14.83	8.67	8.77	9.15	0.74	0.69	0.70	0.74	15.25	13.24	13.30	13.54	1.09	0.95	0.95	0.97
WDC17_60m	60m	14.28	8.62	8.70	9.03	0.73	0.69	0.70	0.73	15.14	13.19	13.25	13.46	1.08	0.94	0.95	0.96
WDC17_70m	70m	13.88	8.58	8.65	8.94	0.72	0.68	0.69	0.72	15.06	13.16	13.21	13.39	1.08	0.94	0.94	0.96

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC17_80m	80m	13.58	8.55	8.61	8.88	0.71	0.68	0.68	0.71	15.00	13.14	13.18	13.35	1.07	0.94	0.94	0.95
WDC17_90m	90m	13.35	8.52	8.58	8.83	0.70	0.67	0.68	0.70	14.95	13.12	13.16	13.31	1.07	0.94	0.94	0.95
WDC17_100m	100m	13.16	8.50	8.56	8.79	0.70	0.67	0.68	0.70	14.91	13.11	13.14	13.28	1.07	0.94	0.94	0.95
WDC17_110m	110m	13.01	8.49	8.54	8.75	0.70	0.67	0.67	0.70	14.88	13.09	13.13	13.26	1.06	0.94	0.94	0.95
WDC17_120m	120m	12.88	8.47	8.52	8.72	0.69	0.67	0.67	0.69	14.86	13.09	13.12	13.24	1.06	0.93	0.94	0.95
WDC17_130m	130m	12.78	8.46	8.51	8.70	0.69	0.67	0.67	0.69	14.84	13.08	13.11	13.22	1.06	0.93	0.94	0.94
WDC17_140m	140m	12.69	8.45	8.50	8.68	0.69	0.66	0.67	0.69	14.82	13.07	13.10	13.21	1.06	0.93	0.94	0.94
WDC17_150m	150m	12.61	8.44	8.49	8.67	0.69	0.66	0.67	0.69	14.80	13.06	13.09	13.20	1.06	0.93	0.94	0.94
WDC17_160m	160m	12.54	8.44	8.48	8.65	0.68	0.66	0.67	0.68	14.79	13.06	13.09	13.18	1.06	0.93	0.93	0.94
WDC17_170m	170m	12.48	8.43	8.47	8.64	0.68	0.66	0.67	0.68	14.78	13.05	13.08	13.18	1.06	0.93	0.93	0.94
WDC17_180m	180m	12.43	8.43	8.47	8.63	0.68	0.66	0.67	0.68	14.77	13.05	13.08	13.17	1.05	0.93	0.93	0.94
WDC17_190m	190m	12.38	8.42	8.46	8.62	0.68	0.66	0.66	0.68	14.76	13.05	13.07	13.16	1.05	0.93	0.93	0.94
WDC17_200m	200m	12.33	8.42	8.46	8.61	0.68	0.66	0.66	0.68	14.75	13.04	13.07	13.15	1.05	0.93	0.93	0.94
WDC18_1m	1m	54.05	12.72	13.60	16.98	1.80	1.29	1.41	1.85	23.54	16.64	17.36	19.85	1.68	1.19	1.24	1.42
WDC18_10m	10m	26.81	9.91	10.25	11.58	1.05	0.86	0.91	1.07	17.75	14.22	14.48	15.41	1.27	1.02	1.03	1.10
WDC18_20m	20m	20.06	9.21	9.42	10.21	0.87	0.76	0.79	0.88	16.32	13.65	13.80	14.33	1.17	0.97	0.99	1.02
WDC18_30m	30m	17.10	8.91	9.05	9.61	0.79	0.72	0.74	0.80	15.70	13.41	13.51	13.87	1.12	0.96	0.96	0.99
WDC18_40m	40m	15.46	8.74	8.85	9.27	0.75	0.70	0.71	0.76	15.37	13.28	13.35	13.62	1.10	0.95	0.95	0.97
WDC18_50m	50m	14.43	8.63	8.72	9.06	0.73	0.69	0.70	0.73	15.16	13.20	13.25	13.46	1.08	0.94	0.95	0.96
WDC18_60m	60m	13.74	8.56	8.63	8.91	0.71	0.68	0.68	0.71	15.02	13.14	13.19	13.36	1.07	0.94	0.94	0.95
WDC18_70m	70m	13.24	8.51	8.57	8.81	0.70	0.67	0.68	0.70	14.92	13.11	13.15	13.29	1.07	0.94	0.94	0.95
WDC18_80m	80m	12.87	8.47	8.52	8.73	0.69	0.67	0.67	0.69	14.85	13.08	13.11	13.23	1.06	0.93	0.94	0.95
WDC18_90m	90m	12.58	8.44	8.49	8.67	0.68	0.66	0.67	0.68	14.79	13.06	13.09	13.19	1.06	0.93	0.93	0.94

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC18_100m	100m	12.35	8.42	8.46	8.62	0.68	0.66	0.66	0.68	14.75	13.04	13.07	13.16	1.05	0.93	0.93	0.94
WDC18_110m	110m	12.17	8.40	8.44	8.58	0.68	0.66	0.66	0.67	14.71	13.03	13.05	13.13	1.05	0.93	0.93	0.94
WDC18_120m	120m	12.02	8.38	8.42	8.55	0.67	0.66	0.66	0.67	14.69	13.02	13.04	13.11	1.05	0.93	0.93	0.94
WDC18_130m	130m	11.90	8.37	8.40	8.52	0.67	0.65	0.66	0.67	14.66	13.01	13.03	13.09	1.05	0.93	0.93	0.94
WDC18_140m	140m	11.79	8.36	8.39	8.50	0.67	0.65	0.66	0.67	14.64	13.00	13.02	13.08	1.05	0.93	0.93	0.93
WDC18_150m	150m	11.70	8.35	8.38	8.48	0.67	0.65	0.65	0.66	14.62	13.00	13.01	13.07	1.04	0.93	0.93	0.93
WDC18_160m	160m	11.62	8.34	8.37	8.46	0.66	0.65	0.65	0.66	14.61	12.99	13.01	13.06	1.04	0.93	0.93	0.93
WDC18_170m	170m	11.55	8.34	8.36	8.45	0.66	0.65	0.65	0.66	14.60	12.99	13.00	13.05	1.04	0.93	0.93	0.93
WDC18_180m	180m	11.49	8.33	8.35	8.43	0.66	0.65	0.65	0.66	14.59	12.98	13.00	13.04	1.04	0.93	0.93	0.93
WDC18_190m	190m	11.44	8.32	8.34	8.42	0.66	0.65	0.65	0.66	14.58	12.98	12.99	13.03	1.04	0.93	0.93	0.93
WDC18_200m	200m	11.39	8.32	8.34	8.41	0.66	0.65	0.65	0.66	14.57	12.98	12.99	13.03	1.04	0.93	0.93	0.93
WDC19_1m	1m	88.29	15.99	17.45	19.98	2.49	1.69	1.88	2.22	28.16	17.90	19.03	20.98	2.01	1.28	1.36	1.50
WDC19_10m	10m	40.39	11.17	11.76	12.78	1.31	1.01	1.09	1.22	19.05	14.05	14.48	15.22	1.36	1.00	1.03	1.09
WDC19_20m	20m	28.62	9.99	10.35	10.99	1.03	0.85	0.90	0.97	16.76	13.13	13.38	13.82	1.20	0.94	0.96	0.99
WDC19_30m	30m	23.40	9.46	9.73	10.19	0.91	0.79	0.82	0.87	15.76	12.74	12.92	13.22	1.13	0.91	0.92	0.94
WDC19_40m	40m	20.40	9.16	9.37	9.73	0.85	0.75	0.77	0.81	15.19	12.52	12.66	12.89	1.08	0.89	0.90	0.92
WDC19_50m	50m	18.47	8.97	9.14	9.43	0.81	0.73	0.74	0.78	14.82	12.39	12.49	12.68	1.06	0.88	0.89	0.91
WDC19_60m	60m	17.10	8.83	8.97	9.21	0.78	0.71	0.73	0.75	14.57	12.29	12.38	12.53	1.04	0.88	0.88	0.90
WDC19_70m	70m	16.10	8.73	8.85	9.06	0.75	0.70	0.71	0.73	14.38	12.22	12.30	12.42	1.03	0.87	0.88	0.89
WDC19_80m	80m	15.33	8.65	8.76	8.94	0.74	0.69	0.70	0.72	14.24	12.17	12.23	12.34	1.02	0.87	0.87	0.88
WDC19_90m	90m	14.72	8.59	8.68	8.84	0.73	0.68	0.69	0.71	14.13	12.13	12.18	12.28	1.01	0.87	0.87	0.88
WDC19_100m	100m	14.24	8.54	8.62	8.76	0.72	0.68	0.69	0.70	14.04	12.10	12.15	12.23	1.00	0.86	0.87	0.87
WDC19_110m	110m	13.84	8.50	8.58	8.70	0.71	0.67	0.68	0.69	13.97	12.07	12.11	12.19	1.00	0.86	0.87	0.87

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC19_120m	120m	13.51	8.47	8.54	8.65	0.70	0.67	0.68	0.69	13.91	12.05	12.09	12.15	0.99	0.86	0.86	0.87
WDC19_130m	130m	13.23	8.44	8.50	8.60	0.70	0.67	0.67	0.68	13.86	12.03	12.07	12.12	0.99	0.86	0.86	0.87
WDC19_140m	140m	12.99	8.42	8.47	8.56	0.69	0.66	0.67	0.68	13.81	12.02	12.05	12.10	0.99	0.86	0.86	0.86
WDC19_150m	150m	12.79	8.40	8.45	8.53	0.69	0.66	0.67	0.67	13.77	12.01	12.03	12.08	0.98	0.86	0.86	0.86
WDC19_160m	160m	12.62	8.38	8.43	8.50	0.68	0.66	0.66	0.67	13.74	11.99	12.02	12.06	0.98	0.86	0.86	0.86
WDC19_170m	170m	12.46	8.36	8.41	8.48	0.68	0.66	0.66	0.67	13.72	11.98	12.01	12.05	0.98	0.86	0.86	0.86
WDC19_180m	180m	12.33	8.35	8.39	8.45	0.68	0.66	0.66	0.67	13.69	11.98	12.00	12.03	0.98	0.86	0.86	0.86
WDC19_190m	190m	12.22	8.34	8.38	8.44	0.68	0.66	0.66	0.66	13.67	11.97	11.99	12.02	0.98	0.86	0.86	0.86
WDC19_200m	200m	12.11	8.33	8.36	8.42	0.67	0.66	0.66	0.66	13.65	11.96	11.98	12.01	0.98	0.85	0.86	0.86
WDC20_1m	1m	24.40	9.25	9.52	9.53	0.78	0.81	0.85	0.85	15.58	13.33	13.53	13.54	1.11	0.95	0.97	0.97
WDC20_10m	10m	15.72	8.40	8.51	8.51	0.69	0.70	0.71	0.71	14.47	12.67	12.74	12.75	1.03	0.91	0.91	0.91
WDC20_20m	20m	13.67	8.20	8.27	8.27	0.67	0.67	0.68	0.68	14.21	12.53	12.57	12.57	1.01	0.89	0.90	0.90
WDC20_30m	30m	12.81	8.12	8.16	8.17	0.66	0.66	0.67	0.67	14.10	12.47	12.50	12.50	1.01	0.89	0.89	0.89
WDC20_40m	40m	12.34	8.07	8.11	8.12	0.66	0.66	0.66	0.66	14.04	12.43	12.46	12.46	1.00	0.89	0.89	0.89
WDC20_50m	50m	12.04	8.04	8.07	8.08	0.66	0.65	0.66	0.66	14.01	12.42	12.44	12.44	1.00	0.89	0.89	0.89
WDC20_60m	60m	11.83	8.02	8.05	8.06	0.65	0.65	0.66	0.66	13.98	12.40	12.42	12.42	1.00	0.89	0.89	0.89
WDC20_70m	70m	11.68	8.01	8.03	8.04	0.65	0.65	0.65	0.65	13.96	12.39	12.41	12.41	1.00	0.89	0.89	0.89
WDC20_80m	80m	11.57	8.00	8.02	8.03	0.65	0.65	0.65	0.65	13.95	12.39	12.40	12.40	1.00	0.88	0.89	0.89
WDC20_90m	90m	11.48	7.99	8.01	8.02	0.65	0.65	0.65	0.65	13.94	12.38	12.39	12.39	1.00	0.88	0.89	0.89
WDC20_100m	100m	11.41	7.98	8.00	8.01	0.65	0.65	0.65	0.65	13.93	12.38	12.39	12.39	1.00	0.88	0.88	0.88
WDC20_110m	110m	11.35	7.97	7.99	8.00	0.65	0.65	0.65	0.65	13.92	12.37	12.38	12.39	0.99	0.88	0.88	0.88
WDC20_120m	120m	11.30	7.97	7.99	7.99	0.65	0.65	0.65	0.65	13.92	12.37	12.38	12.38	0.99	0.88	0.88	0.88
WDC20_130m	130m	11.25	7.96	7.98	7.99	0.65	0.65	0.65	0.65	13.91	12.37	12.38	12.38	0.99	0.88	0.88	0.88

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)				Total Annual Mean Acid deposition (keq/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
WDC20_140m	140m	11.22	7.96	7.98	7.99	0.65	0.65	0.65	0.65	13.91	12.36	12.37	12.38	0.99	0.88	0.88	0.88
WDC20_150m	150m	11.19	7.96	7.97	7.98	0.65	0.65	0.65	0.65	13.91	12.36	12.37	12.37	0.99	0.88	0.88	0.88
WDC20_160m	160m	11.16	7.96	7.97	7.98	0.65	0.65	0.65	0.65	13.90	12.36	12.37	12.37	0.99	0.88	0.88	0.88
WDC20_170m	170m	11.14	7.95	7.97	7.98	0.65	0.65	0.65	0.65	13.90	12.36	12.37	12.37	0.99	0.88	0.88	0.88
WDC20_180m	180m	11.11	7.95	7.97	7.97	0.65	0.65	0.65	0.65	13.90	12.36	12.37	12.37	0.99	0.88	0.88	0.88
WDC20_190m	190m	11.10	7.95	7.96	7.97	0.65	0.65	0.65	0.65	13.90	12.36	12.37	12.37	0.99	0.88	0.88	0.88
WDC20_200m	200m	11.08	7.95	7.96	7.97	0.65	0.65	0.65	0.65	13.89	12.36	12.36	12.37	0.99	0.88	0.88	0.88

Appendix E Air Quality Modelling Lewes Downs SAC

Figure 6: Ecological air quality transects modelled in the Lewes Downs SAC.



Table 10: Air quality data for NH_3, NOx and total nitrogen deposition modelled for the ecological transects identified in Figure 6.

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m³)				Total Annual Mean NH_3 (µg/m³)				Total Annual Mean N (kg N/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
LD1	LD1_12.35m	38.93	2.76	3.32	4.00	1.87	1.52	1.60	1.71	19.54	13.63	14.12	14.73
LD1	LD1_20m	28.30	2.01	2.41	2.90	1.64	1.39	1.45	1.53	17.62	12.93	13.27	13.71
LD1	LD1_30m	20.94	1.49	1.79	2.15	1.49	1.31	1.35	1.41	16.30	12.45	12.70	13.01
LD1	LD1_40m	16.61	1.18	1.42	1.70	1.40	1.26	1.29	1.34	15.53	12.18	12.37	12.61
LD1	LD1_50m	13.76	0.98	1.17	1.41	1.34	1.23	1.26	1.29	15.02	12.00	12.16	12.36
LD1	LD1_60m	11.73	0.83	1.00	1.20	1.30	1.21	1.23	1.26	14.67	11.88	12.01	12.18
LD1	LD1_70m	10.21	0.72	0.87	1.04	1.27	1.19	1.21	1.24	14.40	11.78	11.90	12.04
LD1	LD1_80m	9.02	0.64	0.77	0.92	1.25	1.18	1.20	1.22	14.19	11.71	11.81	11.94
LD1	LD1_90m	8.08	0.57	0.69	0.83	1.23	1.17	1.19	1.20	14.03	11.66	11.75	11.86
LD1	LD1_100m	7.30	0.52	0.62	0.75	1.22	1.16	1.18	1.19	13.89	11.61	11.69	11.79
LD1	LD1_110m	6.65	0.47	0.57	0.68	1.21	1.15	1.17	1.18	13.78	11.57	11.65	11.73
LD1	LD1_120m	6.11	0.43	0.52	0.62	1.20	1.15	1.16	1.18	13.69	11.54	11.61	11.69
LD1	LD1_130m	5.64	0.40	0.48	0.58	1.19	1.14	1.16	1.17	13.61	11.52	11.58	11.65
LD1	LD1_140m	5.24	0.37	0.45	0.53	1.18	1.14	1.15	1.16	13.54	11.49	11.55	11.62
LD1	LD1_150m	4.89	0.35	0.42	0.50	1.17	1.14	1.15	1.16	13.48	11.47	11.53	11.59
LD1	LD1_160m	4.58	0.32	0.39	0.47	1.17	1.13	1.14	1.15	13.43	11.45	11.50	11.56
LD1	LD1_170m	4.31	0.30	0.37	0.44	1.16	1.13	1.14	1.15	13.38	11.44	11.49	11.54
LD1	LD1_180m	4.06	0.29	0.35	0.41	1.16	1.13	1.14	1.15	13.34	11.43	11.47	11.52
LD1	LD1_190m	3.84	0.27	0.33	0.39	1.15	1.13	1.13	1.14	13.30	11.41	11.45	11.50
LD1	LD1_200m	3.64	0.26	0.31	0.37	1.15	1.13	1.13	1.14	13.27	11.40	11.44	11.49
LD2	LD2_63.1m	4.29	0.25	0.30	0.34	1.24	1.21	1.22	1.22	13.57	11.62	11.67	11.69
LD2	LD2_70m	3.95	0.23	0.28	0.31	1.23	1.21	1.21	1.22	13.51	11.61	11.64	11.67
LD2	LD2_80m	3.55	0.21	0.25	0.28	1.23	1.20	1.21	1.21	13.45	11.58	11.62	11.64
LD2	LD2_90m	3.23	0.19	0.23	0.26	1.22	1.20	1.20	1.21	13.39	11.57	11.60	11.62

Transect	Distance from Road (m)	Total Annual Mean NOx (µg/m^3)				Total Annual Mean NH_3 (µg/m^3)				Total Annual Mean N (kg N/ha/yr)			
		2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something	2019 Baseline	2019 Future Baseline	2040 Do Minimum	2040 Do Something
LD2	LD2_100m	2.97	0.18	0.21	0.24	1.22	1.20	1.20	1.21	13.35	11.56	11.59	11.60
LD2	LD2_110m	2.76	0.16	0.20	0.22	1.21	1.19	1.20	1.20	13.32	11.55	11.57	11.59
LD2	LD2_120m	2.57	0.15	0.19	0.21	1.21	1.19	1.20	1.20	13.29	11.54	11.56	11.58
LD2	LD2_130m	2.42	0.15	0.18	0.20	1.21	1.19	1.20	1.20	13.26	11.53	11.55	11.57
LD2	LD2_140m	2.28	0.14	0.17	0.19	1.21	1.19	1.19	1.20	13.24	11.52	11.54	11.56
LD2	LD2_150m	2.16	0.13	0.16	0.18	1.20	1.19	1.19	1.20	13.22	11.52	11.54	11.55
LD2	LD2_160m	2.06	0.13	0.15	0.17	1.20	1.19	1.19	1.19	13.20	11.51	11.53	11.55
LD2	LD2_170m	1.96	0.12	0.15	0.16	1.20	1.19	1.19	1.19	13.19	11.51	11.53	11.54
LD2	LD2_180m	1.88	0.12	0.14	0.16	1.20	1.19	1.19	1.19	13.18	11.50	11.52	11.54
LD2	LD2_190m	1.80	0.11	0.13	0.15	1.20	1.19	1.19	1.19	13.16	11.50	11.52	11.53
LD2	LD2_200m	1.73	0.11	0.13	0.15	1.20	1.19	1.19	1.19	13.15	11.50	11.51	11.53

Appendix F Air Quality Modelling Report

Ashdown Forest SAC & Lewes Downs SAC - Air Quality Modelling Methodology

Habitats Regulations Assessment of the planned Local Plan of Wealden District Council

Wealden District Council

Project number: 60659406

December 2023

Delivering a better world

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1. Introduction

1.1 Wealden District Council's Local Development Scheme (LDS) was adopted on 22nd July 2020 by Full Council. A new Local Plan is in preparation, which will provide policies to manage growth in the district and guide development over a 15-20 year period. The Local Plan will become the key planning document against which planning applications are assessed and will cover the period up to 2040.

1.2 The Local Plan is likely to affect traffic flows on the roads operating through the Ashdown Forest Special Area of Conservation (SAC) and adjacent to the Lewes Downs SAC. Therefore, the Council has commissioned AECOM Limited to conduct an air quality assessment to inform the Appropriate Assessment for the Habitats Regulations Assessment (HRA) of the Regulation 18 Consultation on a Draft Local Plan, as presented here.

1.3 The assessment focuses on the impact of traffic related nitrogen based emissions due to the planned development in the Draft Local Plan on sensitive ecosystems within the Ashdown Forest SAC and the Lewes Downs SAC. Ashdown Forest SAC is designated for heathland, which is sensitive to nitrogen and ammonia deposition and includes lichens and bryophytes that can be particularly sensitive. Lewes Downs SAC is designated for semi-natural dry calcareous grassland, which is sensitive to nitrogen and ammonia deposition and includes rare orchid species.

1.4 This assessment considers the following key pollutants shown to affect sensitive ecosystems: ammonia (NH_3), oxides of nitrogen[1] (NO_X), total nitrogen deposition and total acid deposition. All pollutants are considered at receptor locations within transects up to a distance of 200 m from the roadside - within the SACs.

1.5 Wealden District Council (WDC) undertook monitoring of nitrogen dioxide (NO_2) and ammonia (NH_3) from 2014 to 2020 within the Ashdown Forest SAC. Monitoring data have been used to verify the model performance with regard to NO_2 and NH_3 concentrations.

1.6 The following scenarios have been modelled:

- Baseline year (2019): represents air quality in a past year (2019);
- Future Baseline (2040): uses the traffic data from the 'current baseline' in 2019, but applies future assessment year vehicle emission fleet and background pollutant concentrations to allow for the 'in combination' assessment required for the HRA;
- 2040 'Do Minimum': future assessment year which does not include the influence of the planned development within the Draft Local Plan but allows for strategic planned development in neighbouring local authorities; and
- 2040 'Do Something': future assessment year which includes both the influence of the planned development within the Draft Local Plan and from strategic planned development in neighbouring local authorities.

1.7 The results of the modelling of the above scenarios are assessed to compare against NO_x and NH_3 critical levels, and nitrogen and acid deposition critical loads within the Ashdown Forest SAC and Lewes Downs SAC. The results are presented in the accompanying report 'Habitats Regulations Assessment of the Draft Local Plan of Wealden District Council'.

[1] Nitrogen oxides emitted from combustion processes are collectively known as NOx, and primarily include nitric oxide (NO) which is quickly oxidised in the atmosphere to nitrogen dioxide (NO_2).

2. Policy Context

Clean Air Strategy

2.1 In 2019, the UK government released its Clean Air Strategy 2019 (Defra, 2019) as part of its 25 Year Environment Plan (Defra, 2018). These documents include targets to reduce emissions of ammonia from farming activities, and nitrogen oxides from combustion processes, and thus reduce the deposition of nitrogen to sensitive ecosystems.

Environment Act

2.2 The Environment Act 2021 (HM Government, 2021) amends the Environment Act 1995 (HM Government, 1995). On 9th November 2021, the Act received Royal Assent after being first introduced to Parliament in January 2020 to address environmental protection and the delivery of the Government's 25 Year Environment Plan. It includes provisions to establish a post-Brexit set of statutory environmental principles to ensure environmental governance through an environmental watchdog, the Office for Environmental Protection (OEP).

2.3 The Secretary of State must publish a review report every five years (as a minimum and with yearly updates to Parliament). The 25 Year Environment Plan will be adopted as the first Environmental Improvement Plan (EIP) of the Environment Act 2021, with long-term legally binding targets being finalised by Defra[2].

Habitats Regulations Assessment (HRA)

2.4 While the UK is no longer a member of the EU, a requirement for HRA will continue as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

2.5 The HRA process applies the 'Precautionary Principle'[3] to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the European site(s) in question. To ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the Plan or project in question.

2.6 Following evidence gathering, the first stage of any HRA is the screening for Likely Significant Effects (LSEs), a high-level assessment to decide whether the Appropriate Assessment is required. Where it is determined that a conclusion of 'no Likely Significant Effects' cannot be drawn, the analysis proceeds to the Appropriate Assessment.

2.7 The Local Plan will significantly increase the population and employment opportunities within the District, which may result in more journeys being undertaken within 200 m of sensitive features. Therefore, LSEs cannot be excluded, and the Ashdown Forest SAC and Lewes Downs SAC are screened in for Appropriate Assessment regarding this impact pathway. This is in accordance with Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Natural England, 2018).

2.8 As such, the air quality modelling methodology and analyses presented in this report have been undertaken to inform the HRA for the Ashdown Forest SAC and Lewes Downs SAC.

Other Guidance documents

2.9 Best practice and advice / guidance contained within documents from Natural England (Natural England, 2018), the Institute of Air Quality Management (IAQM) (IAQM, 2020), the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2021) and National Highways (Design Manual for Roads and Bridges DMRB LA105) (DMRB, 2019) have been used to determine the methodology presented in this report, and in the accompanying ecological interpretation of the results.

[2] https://www.gov.uk/government/news/update-on-progress-on-environmental-targets

[3] 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".*

Critical Levels

2.10 Annual mean critical levels of NO_x and NH_3 are summarised in Table 1. These are concentrations above which adverse effects on ecosystems may occur based on present knowledge. The critical level for NO_x is taken from the EU Ambient Air Quality Directive 2008/50/EU (EU Directives, 2008) which has also been set as the Air Quality Strategy objective for the protection of vegetation and ecosystems, and has been incorporated into English legislation.

2.11 The EU Directive (EU Directives, 2008) states that the sampling point to determine compliance should be sited more than 20 km away from agglomerations or more than 5 km away from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50,000 vehicles per day, which means that a sampling point must be sited in such a way that is representative of an area of at least 1,000 km^2. Applying the critical level for NO_x to designated nature conservation sites that are located close to busy roads is therefore precautionary.

2.12 The critical levels for NH_3 have not been incorporated into legislation and are a recommendation made by the United Nations Economic Commission for Europe (UNECE) Executive Body for the Convention on Long-Range Transboundary Air Pollution (CLRTAP) (UNECE, 2013).

Table 1: Annual Mean Critical Levels (NO_x and NH_3)

Pollutant	Critical Level
Oxides of nitrogen (NOx)	30 µg/m^3
Ammonia (NH_3)	3 µg/m^3 for higher plants 1 µg/m^3 for lichens and bryophytes

3. Methodology

3.1 This section presents the methodology used to model air quality within the Ashdown Forest SAC and Lewes Downs SAC. The following sources of information and data have been used to form the basis of the air quality assessment:

- Department for Environment, Food and Rural Affairs (Defra)'s Air Quality Background Concentration Maps based on a 2018 base year (Defra, 2020);
- Defra's Emission Factor Toolkit v11.0 (Defra, 2021b);
- Driver Vehicle Licencing Agency (DVLA) statistics on licensed road-using cars and light goods vehicles dataset for 2022 (DVLA, 2022);
- Department for Transport (DfT)'s Transport Decarbonisation Plan of future vehicle fleet projections (DfT, 2022);
- Emission rates as published in the Calculator for Road Emissions of Ammonia (CREAM) tool (Air Quality Consultants, 2020);
- 1x1 km modelled nitrogen and acid deposition data and ammonia background concentrations from the Air Pollution Information System (APIS, 2022);
- Air quality monitoring data for 2019 undertaken by Wealden District Council (WDC); and
- Traffic count and speed data analysed by East Sussex County Council and Jacobs.

3.2 The modelling assessment was conducted following the methodology within Defra's LAQM.TG(22) Technical Guidance (Defra, 2022), and guidance contained within documents from Natural England (Natural England, 2018), the Institute of Air Quality Management (IAQM) (IAQM, 2020) and the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2021).

Pollutants of Interest

3.3 The pollutants of interest with regard to sensitive ecosystems for which critical levels and critical loads exist, and which are included in the air quality modelling and assessment of impacts on the Ashdown Forest SAC and Lewes Downs SAC, are NO_x, NH_3, and nitrogen and acid deposition. Modelling of these pollutants is undertaken to assess the air quality impacts of planned development in the Local Plan, both alone and 'in combination' with that that is in the jurisdiction of surrounding authorities.

3.4 Whilst emissions of NO_x from road vehicles are regulated according to Euro standards, emissions of NH_3 are generally not regulated. This means that emissions of NH_3 from individual vehicle types are highly uncertain, particularly as measurements are rarely made (as this is not required for regulatory purposes). The uncertainty associated with the predicted nitrogen deposition rates from NH_3 is also greater than for NO_2, with the NH_3-derived nitrogen deposition rates representing an upper estimate.

3.5 There is currently no tool publicly available for the assessment of road traffic emissions of NH_3 from National Highways, Defra, Natural England, or other nature conservation bodies. However, there is evidence that exclusion of NH_3 from assessments leads to an underestimate of deposited nitrogen (Air Quality Consultants, 2020).

3.6 The methodology used to model ammonia concentrations from road traffic, using ADMS Roads, and the subsequent contribution to nitrogen deposition within the SACs (described below), is considered the most appropriate that is publicly available at this time. The methodology has been applied by AECOM in several Appropriate Assessments to inform HRA including that for Tunbridge Wells Borough and Epping Forest District Councils.

Nitrogen Oxides

3.7 Detailed dispersion modelling of road traffic emissions of NOx has been undertaken using the latest version of ADMS Roads (currently v5), combined with the latest version – at the time of assessment –

of Defra's Emissions Factor Toolkit (EFT v11). The subsequent contribution of emitted NOx to nitrogen deposition within the SAC has also been assessed.

3.8 Future fleet predictions were updated in EFT v11 (November 2021) for the fleet operating outside of London. However, the UK government's policy to ban the sale of new petrol and diesel cars and vans by 2035 (recently postponed from 2030) are not accounted for in the fleet information within the current version of the EFT. As such, a more up-to-date fleet projection for the future year fleet has been used, in line with recent DfT policy, which is discussed in more detail below in the "Modelled Vehicle Fleet" subsection. This takes account of the fact that a significant shift in the constitution of the UK vehicle fleet will arise during the 2030s.

3.9 As the latest year for which emission factors and fleet information are available in EFT v11 is 2030, AECOM proposes to use 2030 information for any later modelled years. This therefore offers a precautionary approach for Local Plan modelling as it would not account for any improvements in vehicle emission factors in the latter part of the plan period (even though such improvements are likely with the introduction of Euro 7 from c.2025 or the ban on the sale of new petrol and diesel cars and vans from 2035, recently postponed from 2030).

Ammonia

3.10 In February 2020, Air Quality Consultants developed and published the Calculator for Road Emissions of Ammonia (CREAM) tool, "*in order to allow tentative predictions regarding trends in traffic-related ammonia emissions over time"*. The tool is based upon remotely sensed pollutant measurements, published real-world fuel consumption data, and ambient measurements of ammonia recorded in Ashdown Forest (2014-2016).

3.11 The report that was published alongside the CREAM tool states that:

"*It should be recognised that these emissions factors remain uncertain. Using them to make future year predictions will clearly be an improvement on any assessment which omits ammonia. They are also considered to be more robust than the emissions factors contained in the EEA Guidebook, which risk significantly under-predicting ammonia emissions. The emissions factors contained in the CREAM model can be considered to provide the most robust estimate of traffic-related ammonia possible at the present time, but they may be updated in the future as more information becomes available*."

3.12 The CREAM tool currently uses vehicle fleet information from Defra's EFT v9 which has now been superseded. AECOM has therefore applied the ammonia emission factors, as derived by Air Quality Consultants and in the current version of CREAM, with the average vehicle fleet on rural roads from EFT v11.0 to estimate emissions in the SAC.

3.13 The latest version of ADMS Roads has been employed to model the dispersion of emissions of NH_3 from road traffic, consistent with the approach for modelling emissions of NOx, and the subsequent contribution of emitted NH_3 to nitrogen deposition within the SAC has also been assessed.

Traffic Data

3.14 Traffic flows have been calculated from the East Sussex County Council (ESCC) STEB traffic model using traffic count data from ESCC. Additional ATC data recorded within the Ashdown Forest SAC during the earlier monitoring campaign has been used to supplement the STEB model coverage. These data have been provided to AECOM by Jacobs in the form of Annual Average Daily Traffic (AADT) flows, and percentage of heavy duty vehicles (HDV).

3.15 The growth for authorities beyond East Sussex comes from TEMPRO and is then adjusted using RTS growth factors. As average speeds are not available from the STEB model, average speeds used in the air quality modelling have been taken from another model of the same area, rather than using speed limit data. These data will be updated for the Regulation 19 assessment, when a bespoke Ashdown Forest SAC model is expected to be built and used.

3.16 The Ashdown Forest SAC modelled road links are shown in Figure 1, and Lewes Downs SAC road links presented in Figure 2.

3.17 Traffic data were provided for three scenarios:

- Baseline traffic (2019) flows - from traffic counts;
- Future year (2040) 'Do Minimum' flows - from the baseline traffic counts with a growth factor applied;
- Future year (2040) 'Do Something' flows - from baseline traffic counts with a growth factor applied, plus STEB flows relating to Wealden.

A summary of the traffic data used in the air quality assessment is provided in Annex A.1.

Modelled Vehicle Fleet

3.18 For the baseline modelling of the SAC, the nominal EFT v11 "Basic Split" rural fleet for the 2019 year was used, as this aligns well with the 2019 base year traffic data, 2019 meteorological data, and 2019 Ashdown Forest SAC monitoring data.

3.19 For the future year (2040) modelling, an approach has been taken to determine the vehicle fleet used in the modelling to apply a more up-to-date projection than that published in the EFT v11 in relation to the uptake of hybrid and zero emission / battery electric vehicles. A current vehicle fleet representative of the local area was determined, which was then projected forward to the future year (2040) following the methodology below.

3.20 The current (2022) fleet composition, from which the 2040 fleet projection is based, is derived from the most up-to-date available full-year dataset (2022) of registered light-duty vehicles (LDV) from DVLA (DVLA, 2022). A high-level review of the fleet characteristics for Wealden District, neighbouring districts, and West and East Sussex counties, revealed a high level of similarity at local and county levels. Given this similarity, and to incorporate a dataset with a greater number of overall vehicles, it was decided to use the fleet characteristics at the combined East Sussex and West Sussex county level as the starting point for the fleet projections.

3.21 Light Duty Vehicles (LDVs), which are mainly cars and light goods vehicles (LGVs), comprise the majority of vehicles in the overall fleet (approximately 95%), and therefore this dataset will give a robust and accurate starting point for future fleet projections. HDVs (buses/coaches and Heavy Goods Vehicles- HGVs), which comprise the remaining ~5% of the fleet, have been apportioned based on the EFT basic split for 2040. The exact LDV/HDV split varies according to the provided traffic data and depends on the road link, and the fleet breakdown for each road link takes this split into account.

3.22 Transport projections out to 2050 of UK's intended decarbonisation of the fleet and alignment with Net Zero became available from the DfT's Transport Decarbonisation Plan (TDP) (DfT, 2022). These projections are based on high and low ambition for rates of decarbonisation for every year up to 2050. These projections were adjusted to determine the breakdown of individual fuel types in line with the EFT v11.

3.23 To take a more cautious approach, the lower ambition "Decarbonising Transport Upper" projection was used to project the 2022-based current fleet out to the future year of 2040, by using the calculated year-on-year car, LGV and HDV growth rates for each vehicle fuel type. This projection was deemed to represent a more cautiously realistic scenario than either the EFT v11 or TDP baseline projections.

Figure 1: Ashdown Forest SAC Modelled Road Network and Ecological Receptor Transects

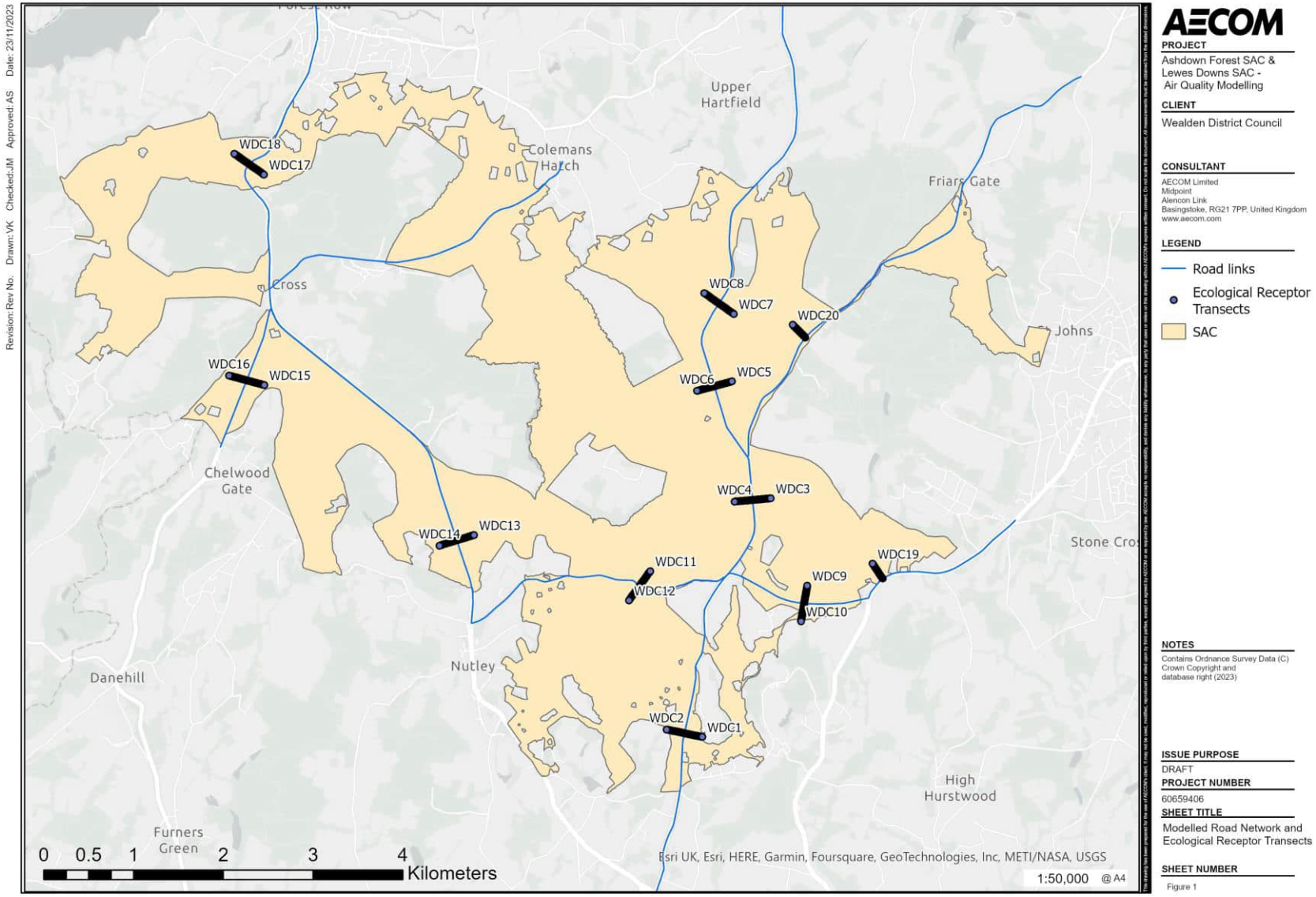
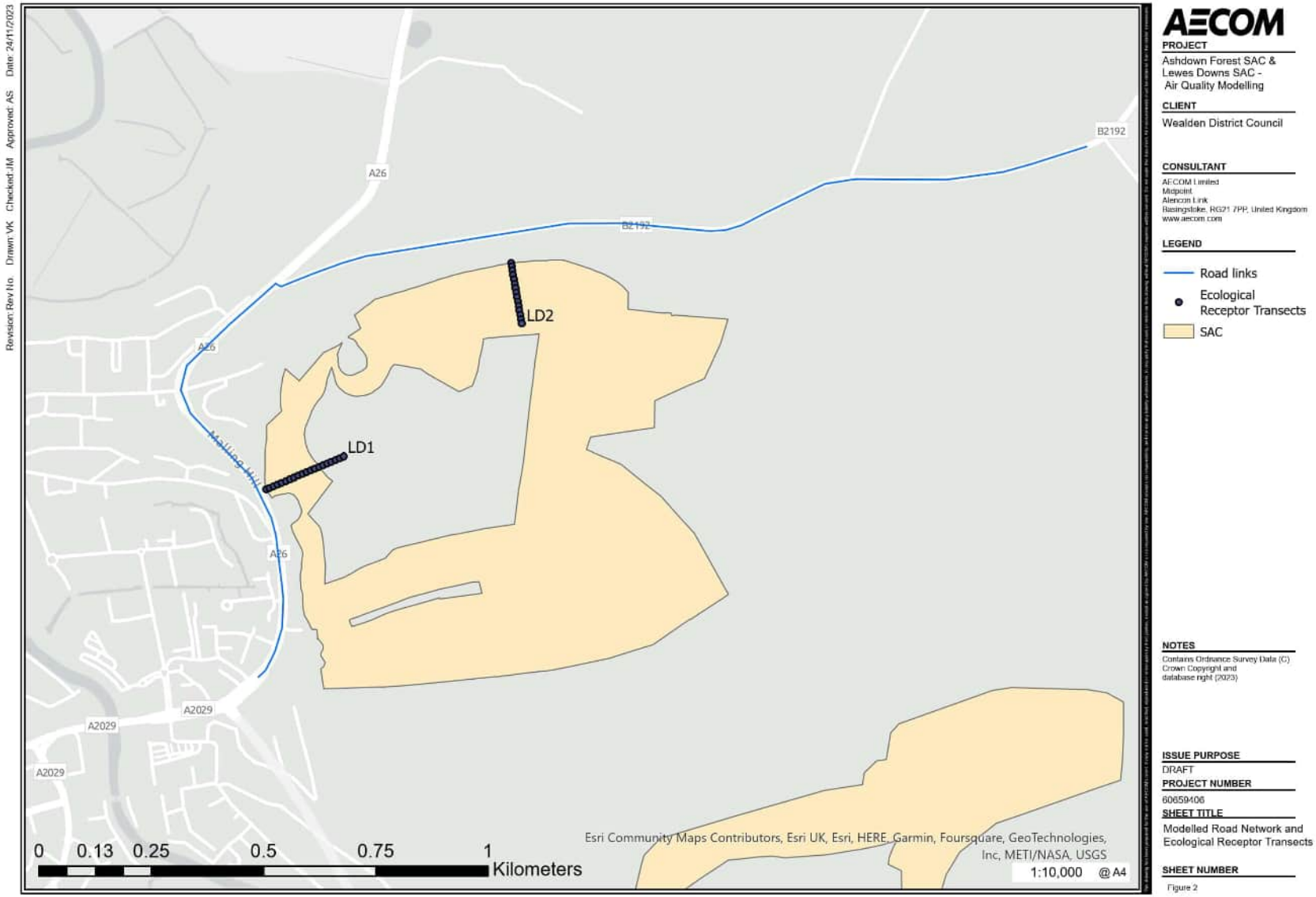


Figure 2: Lewes Downs SAC Modelled Road Network and Ecological Receptor Transects



Receptors

3.24 Pollutant concentrations and deposition rates have been predicted along defined transects within the SAC within 200 m of affected roads, in accordance with National Highways guidance for ecological assessments (LA105) (DMRB, 2019), Natural England guidance (Natural England, 2018), and consistent with the approach undertaken to modelling impacts on Ashdown Forest for the South Downs, Lewes and Mid Sussex Local Plans. The greatest impacts from changes in road traffic emissions will be observed and modelled closest to the roadside. Consideration of the road network within 200m of the SACs is therefore considered robust as background concentrations utilised in the assessment account for all other sources that are not defined explicitly in the model.

3.25 The locations of the ecological transects relevant to this project were agreed with WDC and other stakeholders. The transects are situated at key locations where the greatest impacts upon the SACs are likely to occur. The locations are presented in Figure 1 and Figure 2, with further details presented in Annex A.2.

3.26 The receptors are situated at the closest point to the road within the SACs, and spaced every 10 m within the transects, up to 200 m from the roadside. All receptors are modelled at ground level.

3.27 The greatest impacts will generally occur where both the greatest change in traffic flows is expected and where the sensitive habitat lies closest to the road. This information has been used to select transect locations. The usual approach is to place a transect on a modelled link (sometimes having a transect either side of the road to account for differences in the dispersion of emissions due to meteorology), with each link being defined as a stretch of road between changes in emissions i.e. where there are changes in traffic flows and/or speeds.

3.28 The Ashdown Forest SAC modelled transects presented in Figure 1 provide a good coverage of the SAC, match well with air quality monitoring locations and previously modelled transects, and avoid modelling in areas where there is only woodland within 200 m of the road. This is based on confirmation from Natural England that woodland is not an SAC interest feature, only a SSSI interest feature.

Model Setup

3.29 As detailed above, road traffic emissions of NO_x were derived using v11.0 of Defra's Emissions Factor Toolkit (EFT) and associated guidance and tools (Defra, 2022). For the base year (2019), the nominal EFT "Basic Split" rural vehicle fleet for 2019 was used, whereas for all the future year (2040) scenarios, the 2040 projected fleet as described in the methodology above was used with the default 2030 EFT emission factors. Road traffic emissions of NH_3 were derived using emission rates CREAM V1A (Air Quality Consultants, 2020) combined with the EFT v11.0 vehicle fleet for the relevant year, using the same vehicle fleet methodology as described above for NO_X.

3.30 Detailed dispersion modelling was undertaken using the current version of ADMS-Roads (v5.0) to model concentrations of NO_x and NH_3 using the parameters in Table 2 for the following scenarios:

- 2019 Baseline – 2019 AADT, 2019 emission factors and 2019 "Basic Split" fleet, and 2019 background concentrations;
- 2040 Future Baseline – 2019 AADT, 2030 emission factors (latest available year), 2040 projected vehicle fleet, and 2030 background concentrations (the latest projected year available from Defra);
- 2040 Do Minimum (Reference Case) – 2040 AADT without Local Plan, 2030 emission factors (latest available year), 2040 projected vehicle fleet, and 2030 background concentrations; and
- 2040 Do Something – 2040 AADT with Local Plan, 2030 emission factors (latest available year), 2040 projected vehicle fleet, and 2030 background concentrations.

3.31 The baseline year was modelled to provide a means of model verification – for this assessment, 2019 traffic data were provided for the modelled baseline. To support the assessment of the potential impact of the Local Plan, a 'future baseline' and future year 'do minimum' scenario were modelled. The 'do minimum' scenario includes the influence of development in neighbouring local authorities, whereas the 'future baseline' does not.

3.32 The future baseline is a hypothetical scenario as it applies improvements in vehicle emissions standards to the baseline vehicle fleet without allowing for any traffic growth. However, such an approach enables the 'in combination' effect of development and traffic growth to be seen, unobscured by improvements in emissions technology / performance.

3.33 The difference between the 'do something' and the 'do minimum' scenarios provides the impact of the Draft Local Plan, alone. The difference between the 'do something' and the 'future baseline' scenario provides a thorough and precautionary assessment of the impact of the Draft Local Plan 'in combination', as the 'future baseline' accounts for no future growth.

3.34 Version 11.0 of the EFT and Defra's associated tools provide data from 2018 to 2030. For this reason, 2019 emission rates and background concentrations were used for the baseline year scenario, and 2030 emission rates and background concentrations were used for the future year scenarios.

Table 2: General ADMS-Roads Model Conditions

Variables	ADMS-Roads Model Input
Surface roughness at source	0.5m
Surface roughness at Meteorological Site	0.2m
Minimum Monin-Obukhov length for stable conditions	30m
Terrain types	Flat
Receptor location	x, y coordinates determined by GIS, z = 0m for ecological receptors.
Emissions	NO_x – Defra's EFT v11.0 NH_3 – CREAM V1A
Meteorological data	1 year (2019) hourly sequential data from Gatwick meteorological station.
Receptors	Ecological transects
Model output	Long-term (annual) mean NO_x and NH_3 concentrations.

Plume Depletion

3.35 Plume depletion due to dry deposition onto vegetation was taken into account in the model. This was enabled by using the ADMS-Roads 'Dry Deposition' module, applying the 'grassland' deposition rates presented in the Air Quality Technical Advisory Group (AQTAG) deposition velocities that are cited in 2020 IAQM guidance (IAQM, 2020), as shown in Table 3**Error! Reference source not found.**.

3.36 The deposition velocity for NO_2 was applied to raw modelled NO_x. This assumes that 100% of NO_x is emitted as NO_2, and therefore represents an optimistic depletion of NO_x from the atmosphere.

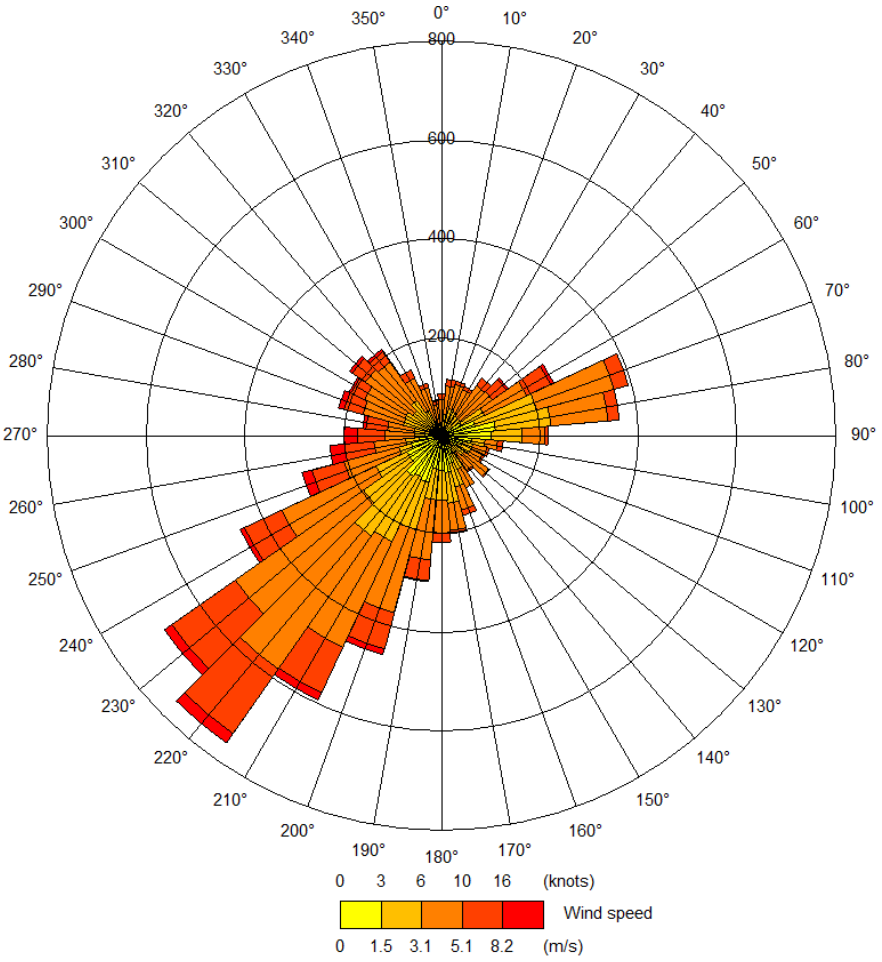
Table 3: Nitrogen Deposition Velocities and Conversion Rates

Pollutant	Habitat	Nitrogen deposition conversion rates	Deposition velocity
NO_2	Grassland / short vegetation	1 µg/m^3 NO_2 = 0.14 kgN/ha/yr	0.0015 m/s
NH_3	Grassland / short vegetation	1 µg/m^3 NH_3 = 5.2 kgN/ha/yr	0.020 m/s

Meteorological Data

3.37 One year (2019) of hourly sequential observation data from Gatwick meteorological station has been used in this assessment to correspond with the baseline traffic data and emission factors. The station is located approximately 26 km and 33 km northwest of Ashdown Forest SAC and Lewes Downs SAC, respectively, and experiences meteorological conditions that are representative of those experienced within the air quality study areas. Figure 3 shows that the dominant direction of wind was from the south-west, as is typical for the UK.

Figure 3: Wind Rose, Gatwick Airport Meteorological Data, 2019



Background Data

3.38 Background concentrations of NO_2 and NO_x for 2019 and 2030 were extracted from Defra's 2018-based 1x1 km background maps (Defra, 2020). Contributions from explicitly modelled source sectors were removed from the background concentrations, in accordance with Defra guidance (Defra, 2022). The data presented in Table 4 show that the concentrations are predicted to decrease between 2019 and 2030 and NO_x concentrations are well below the objective shown in Table 1.

3.39 Background NO_2 monitoring data recorded in Ashdown Forest SAC in 2019 were reviewed, and an average of 8.1 µg/m^3 calculated using 27 background monitoring locations. Defra mapped background NO_2 concentrations were identified as being approximately 4-14% lower than this average monitored concentration across the area of the SAC. As such, Defra background NO_2 and NOx were uplifted by the calculated ratio in both the base and future years for use in the modelling assessment.

3.40 For Ashdown Forest SAC, 2019 emission rates and monitored background concentrations were used for the baseline year scenario, and 2030 emission rates and adjusted background concentrations were used for the future year scenarios.

3.41 For Lewes Downs SAC, 2019 emission rates and Defra background concentrations were used for the baseline year scenario, and 2030 emission rates and Defra background concentrations were used for the future year scenarios. No appropriate background monitoring data were available for the Lewes Downs SAC model domain.

3.42 Whilst fleet data beyond 2030 are provided within the EFT, 2030 is the latest year for which the accompanying tools are available e.g. mapped background concentrations and the NO_x-to-NO_2 calculator.

Table 4: Defra Mapped Background Pollutant Concentrations

Transects	Road Name	Grid Square (X, Y)	Annual Mean Concentrations(µg/m³)			
			2019 NO_2	2019 NO_x	2030 NO_2	2030 NO_x
WDC1	B2026	546500, 127500	8.1	10.4	6.0	7.7
WDC2	B2026	546500, 127500	8.1	10.4	6.0	7.7
WDC3	B2188	547500, 129500	8.1	10.4	6.1	7.8
WDC4	B2188	547500, 129500	8.1	10.4	6.1	7.8
WDC5	B2026	546500, 130500	8.1	10.4	6.1	7.9
WDC6	B2026	546500, 130500	8.1	10.4	6.1	7.9
WDC7	B2026	546500, 131500	8.1	10.4	6.1	7.9
WDC8	B2026	546500, 131500	8.1	10.4	6.1	7.9
WDC9	New Road	547500, 128500	8.1	10.4	6.1	7.8
WDC10	New Road	547500, 128500	8.1	10.4	6.1	7.8
WDC11	Crowborough Road	546500, 128500	8.1	10.4	6.1	7.8
WDC12	Crowborough Road	546500, 128500	8.1	10.4	6.1	7.8
WDC13	A22	544500, 129500	8.1	10.4	6.2	8.0
WDC14	A22	544500, 129500	8.1	10.4	6.2	8.0
WDC15	A275	541500, 131500	8.1	10.5	6.2	8.1
WDC16	A275	541500, 131500	8.1	10.5	6.2	8.1
WDC17	A22	541500, 133500	8.1	10.5	6.4	8.2
WDC18	A22	541500, 133500	8.1	10.5	6.4	8.2
WDC19	A26	548500, 128500	8.1	10.4	6.4	8.2
WDC20	B2188	547500, 131500	8.1	10.4	6.2	7.9
LD1	A26	542500, 110500	9.9	13.0	7.2	9.2
LD2	B2192	542500, 111500	8.9	11.6	6.5	8.3

Note: Sectors removed as emissions included in detailed dispersion modelling: Motorway (in of 1x1km grid square), Trunk A road (in of 1x1km grid square) and Primary A Road (in of 1x1km grid square)

Ecological Data

3.43 The Air Pollution Information System (APIS[4]) provides '*a searchable database and information on pollutants and their impacts on habitats and species*'. Data for the appropriate habitats have been applied for each receptor in the study. This includes critical loads of nitrogen and the average nitrogen and acid deposition rates to the habitat, as presented in Table 5. It should be

[4] https://www.apis.ac.uk/

noted that the critical loads (both nitrogen and acid) differ for the Ashdown Forest and Lewes Downs SACs in Table 5 due to the presence of different sensitive features.

3.44 While gorse scrub and other shrubs are present in Ashdown Forest SAC, they are not of significance to heathland integrity in dense stands. The deposition velocity to short vegetation is applicable where such shrubs are interspersed as part of the heathland matrix. Lewes Downs SAC is designated for semi-natural dry calcareous grassland, which is sensitive to nitrogen and ammonia deposition and includes rare orchid species. The deposition velocity to short vegetation is therefore also applicable.

3.45 Background concentrations of ammonia were also sourced from modelled maps available from APIS, thereby accounting for all sources that are not explicitly defined in the model. The NH_3 background concentrations from APIS presented in Table 5 are greater than the average monitored concentration of 0.64µg/m^3, which is used in the Ashdown Forest SAC model verification and calculations for the baseline and future year assessments.

3.46 In order to create a robust and scientifically agreed projection for background nitrogen deposition trends in the UK, even allowing for growth, the Joint Nature Conservation Committee (JNCC) commissioned the Nitrogen Futures project, which reported in 2020 (JNCC, 2020). The JNCC Nitrogen Futures project investigated whether a net improvement in nitrogen deposition (including expected development over the same period) was expected to occur to 2030 under a range of scenarios ranging from the most cautious scenario (Business As Usual, BAU, reflecting simply existing emission reduction commitments / measures already in place) to much more ambitious scenarios that would require varying amounts of additional, currently uncommitted, measures from the UK government and devolved administrations.

3.47 The report concluded that *'The scenario modelling predicts a substantial decrease in risk of impacts on sensitive vegetation by 2030, under the most likely future baseline [a scenario called '2030 NAPCP+DA (NECR NOx)']. This is estimated to achieve the UK Government's Clean Air Strategy (CAS) target for England, defined as a 17% decrease in total reactive N deposition onto protected priority sensitive habitats, with a predicted 18.9% decrease [for England] from a 2016 base year'*. The report predicted a fall in nitrogen deposition by 2030 under every modelled scenario, including the most cautious (2030 BAU). For the BAU scenario, nitrogen deposition was forecast to decrease between 2017 and 2030 from 277.1 kt N to 239.5 kt N (i.e. a reduction of 37.6 kt N).

3.48 Background nitrogen deposition at Ashdown Forest was specifically discussed in Annex 5 of the report as a case study. The report predicted a 1-2 kgN/ha/yr reduction in background nitrogen deposition to low growing vegetation (i.e. the heathland interest feature) at the SAC between 2016 and 2030, depending on scenario, and noted that *'The emission reductions predicted between the 2017 and 2030 baseline scenarios cover a range of sectors, including road transport, and so improvements are predicted to occur over the whole site, including the worst-affected roadside locations'*. This was the case under all modelled scenarios.

3.49 In summary, the Nitrogen Futures study forecast a minimum rate of improvement in background nitrogen deposition of 0.07 kgN/ha/yr at Ashdown Forest, with other forecasts indicating a greater rate of reduction. In line with the forecast for Ashdown Forest, and therefore taking a precautionary approach, this study applies a projected decrease in background nitrogen of 0.07 kgN/ha/yr. The corresponding decrease is also reflected in the total average acid deposition rate for nitrogen in the future scenarios.

3.50 Over the 20-year period, this equates to a reduction in the APIS background nitrogen deposition rate presented in Table 5 (3-year average, 2018-20) of 1.47 kg N/ha/yr for the 2040 model scenarios. This decrease is also reflected in the total average acid deposition rate for nitrogen in the 2040 scenarios (reduction of 0.10 keq/ha/yr N).

3.51 No other adjustments to the APIS data have been made from those presented (3-year average, 2018-20) for any modelled scenario.

3.52 Not to make *any* allowance for improvements in emission factors or background concentrations would result in increased emissions, and hence concentrations, over the plan period as an increased number of vehicles is expected on the roads. This is not expected to occur as can be

seen from previous long-term trends in the UK, which show the slowing of improvements over extended periods, not worsening. Historical records (e.g. Defra monitoring trends of NOx) show that the increasing number of vehicles entering the fleet is offset by improvements in the emissions of the newer vehicles and the removal of older vehicles.

3.53 In 2018 the Court of Justice of the European Union (CJEU) ruled in cases C-293/17 and C-294/17 (often dubbed the Dutch Nitrogen cases). One aspect of that ruling concerned the extent to which autonomous measures (i.e. improvements in baseline nitrogen deposition that are not attributable to the Local Plan) can be taken into account in appropriate assessment, the CJEU ruled that it ***was*** legally compliant to take such autonomous measures into account provided the benefits were not 'uncertain' (paras. 130&132). Note that previous case law on the interpretation of the Habitats Directive has clarified that 'certain' does not mean absolute certainty but '*where no reasonable scientific doubt remains*'[5] [emphasis added].

3.54 The forecasts for improvements in NO_x emission factors, background concentrations and background deposition rates used in this report are considered to be precautionary but realistic, and have the requisite level of certainty. This is because a) data are used and to a large extent they build upon established historic trends in NO_x and oxidised nitrogen deposition and b) for total nitrogen deposition they are based on a cautious use of evidenced central government forecasts associated with uptake of technology that has either already been introduced or is widely expected within the professional community to be introduced and effective before 2030, as illustrated in the Nitrogen Futures project:

- When it comes to forecasting the NO_x emissions of additional traffic, it would overestimate those emissions to assume that by 2040 the emission factors will be no different to those in 2019; to make such an assumption would be to fail to take account of the expected continued uptake of Euro 6 compliant vehicles between 2019 and 2040 and would assume (putting it simply) that no motorists would replace their cars during the entire plan period. For example, the latest (Euro 6/VI) emissions standard only became mandatory in 2014 (for heavy duty vehicles) and 2015 (for cars) and the effects will not therefore be visible in the data available from APIS because relatively few people will have been driving vehicles compliant with that standard as early as 2019. Far more drivers can be expected to be using Euro 6 compliant vehicles by the end of the Local Plan period.
- The vehicle emission factors within the air quality modelling tools available only project out to 2030. While the fuel technology is projected out to 2040 following the DfT decarbonisation pathway, as described earlier, the breakdown of euro classifications published in the EFT extends to 2030, and so the 2040 assessment year does not recognise continued uptake of more stringent emissions standards. Therefore, the results are likely to be cautious in terms of emissions related to vehicle age.

[5] Case C-239/04 Commission v Portugal [2006] ECR 10183, para. 24; Holohan et al vs. An Bord Pleanála (C-461/17), para. 33

Table 5: APIS Data for Ecological Transects for 2019-2021

Transect	Average N Dep kgN/ha/yr[$]	Critical Load N Dep kgN/ha/yr	Total Av. Acid Dep keq/ha/yr N[$]	Critical Load N Acid Dep keq/ha/yr MinCLMaxN	Background NH_3 (µg/m^3)*
WDC1	18.98	–5 - 15	1.40	0.952	1.12
WDC2	18.98	5 - 15	1.40	0.952	1.12
WDC3	19.35	5 - 15	1.42	0.952	1.03
WDC4	19.35	5 - 15	1.42	0.952	1.03
WDC5	19.46	5 - 15	1.43	0.952	1.02
WDC6	19.46	5 - 15	1.43	0.952	1.02
WDC7	19.62	5 - 15	1.44	0.952	1.00
WDC8	19.62	5 - 15	1.44	0.952	1.00
WDC9	19.30	5 - 15	1.42	0.952	1.05
WDC10	19.30	5 - 15	1.42	0.952	1.05
WDC11	19.14	5 - 15	1.41	0.952	1.06
WDC12	19.14	5 - 15	1.41	0.952	1.06
WDC13	19.19	5 - 15	1.41	0.952	1.06
WDC14	19.19	5 - 15	1.41	0.952	1.06
WDC15	19.82	5 - 15	1.46	0.952	1.07
WDC16	19.82	5 - 15	1.46	0.952	1.07
WDC17	19.94	5 - 15	1.47	0.952	1.09
WDC18	19.94	5 - 15	1.47	0.952	1.09
WDC19	19.47	5 - 15	1.43	0.952	1.05
WDC20	19.46	5 - 15	1.42	0.952	1.00
LD1	12.69	10 - 20	0.94	4.856	1.31
LD2	12.89	10 - 20	0.96	4.856	1.34

Note:
[$] Average nitrogen deposition rate (kgN/ha/yr) projected to decrease by 1.47 kgN/ha/yr from base year to future year (i.e. 0.07 x 21 years = 1.47 kgN/ha/yr). This results in a corresponding decrease in acid deposition of 0.101 keq/ha/yr N.
* Average 2019 monitored NH_3 background concentration applied in Ashdown Forest SAC modelling assessment = 0.64 µg/m^3

Verification

3.55 Model verification is the process by which the performance of the model is assessed to identify any discrepancies between modelled and measured concentrations at air quality monitoring sites within the study area.

3.56 Long-term roadside monitoring of both NO_2 and NH_3 has been undertaken in Ashdown Forest in recent years (2014-2020). Maps of monitoring locations are presented in Figure 4 and Figure 5.

3.57 These data have been used to make a direct comparison between ‘road source’ modelled and measured concentrations at the same location, so as to calculate an adjustment factor – or ‘verification factor’ – for the SAC for each pollutant, to enable adjustment of the model results to account for any model bias.

3.58 Defra provide guidance regarding verification of NO_x and NO_2 concentrations (Defra, 2022). There are currently no guidelines for verifying against ammonia measurements, however the same principles have been followed as for other road sources (i.e. comparing modelled and

monitored road source contributions, separate from background concentrations). This is aligned with general air quality modelling convention.

3.59 Statistical evaluations have been used to evaluate the model performance e.g. correlation coefficient, fractional bias and Root Mean Square Error (RMSE), allowing for a better understanding of how the model results agree or diverge from the monitored observations.

3.60 Due to the location of the Lewes Downs SAC (also adjacent to the A26) and the fact that no appropriate monitoring data were available within the Lewes Downs model domain, the verification factors calculated for the Ashdown Forest SAC were also applied to modelled data for the Lewes Downs SAC.

NO_2 Verification

3.61 Modelled predictions were made for annual mean NO_2 concentrations at monitoring locations in order to compare monitored and modelled pollutant concentrations. The comparison of model outputs was made against 2019 monitoring data so as to correspond with the baseline year of assessment.

3.62 Following detailed analysis of each monitoring location in the study area, a total of 54 roadside monitoring sites were taken forward in the model verification process. Table 6 details the sites used in model verification.

3.63 Model performance was analysed at these monitoring sites. Without adjustment the root mean square error (RMSE) was 8.3 µg/m^3. A model adjustment factor was calculated (3.26) and applied to the model results. After adjustment the RMSE was reduced to 3.7 µg/m^3 as shown in Table 7.

Table 6: Local Authority NO_2 Monitoring Sites used in Model Verification

Site ID	Total modelled NO_2 before adjustment (µg/m^3)	Total modelled NO_2 after adjustment (µg/m^3)
T1	11.3	18.2
T2	11.2	17.9
T3	11.1	17.5
T4	10.9	17.1
T5	9.5	12.5
T6	10.2	14.8
T13	9.2	11.8
T14	9.6	12.9
T15	9.3	11.8
T16	9.1	11.5
T19	13.1	23.7
T20	13.3	24.3
T21	15.2	29.8
T22	13.6	25.0
T23	10.1	14.6
T24	9.8	13.6
T25	10.0	14.0
T31	13.1	23.8
T33	12.3	21.3

Site ID	Total modelled NO_2 before adjustment ($\mu g/m^3$)	Total modelled NO_2 after adjustment ($\mu g/m^3$)
T34	11.6	19.0
T35	11.0	17.3
T36	11.5	18.9
T37	11.8	19.9
T38	9.5	12.6
T40	10.3	15.1
T42	11.5	18.8
T48	10.3	15.0
T49	10.1	14.6
T58	8.9	10.8
T59	9.4	12.2
T61	10.1	14.4
T62	10.5	15.6
T65	11.4	18.5
T66	10.0	14.1
T67	10.5	15.8
T68	9.4	12.3
T71	10.5	15.8
R1.1	12.9	22.9
R1.2	12.2	20.8
R1.3	11.3	18.3
R1.4	10.4	15.5
R2.1	13.8	25.6
R2.2	13.7	25.4
R2.3	12.7	22.3
R2.4	11.5	18.7
R3.1	11.8	19.6
R3.2	11.5	18.8
R3.3	10.5	15.6
R3.4	9.9	14.0
R4.1	15.7	31.3
R4.2	15.1	29.5
R4.3	13.9	26.1
R4.4	12.5	22.0
A1	11.4	18.5

Table 7: NO_2 Model Verification details

Number of Sites	Number of Monitoring Sites within ±10% of the Monitored Concentration Pre-Adjustment	RMSE pre-adjustment (µg/m^3)	Model Adjustment Factor Applied	Number of Sites within ±10% of the Monitored Concentration Post Adjustment	RMSE post adjustment (µg/m^3)	Fractional Bias post adjustment)
54	7	8.3	3.26	15	3.7	0.0

NH_3 Verification

3.64 Modelled predictions were made for annual mean NH_3 concentrations at monitoring locations in order to compare monitored and modelled pollutant concentrations. The comparison of model outputs was made against 2019 monitoring data so as to correspond with the baseline year of assessment.

3.65 Following detailed analysis of each monitoring location in the study area, a total of 21 monitoring sites were taken forward in the model verification process. Table 8 summarises the sites used in model verification.

3.66 A model adjustment factor was calculated (1.13) and applied to the model results. The RMSE was reduced to 0.18 µg/m^3 (from 0.19 µg/m^3) following adjustment.

Table 8: Local Authority NH_3 Monitoring Sites used in Model Verification

Site ID	Total modelled NH_3 before adjustment (µg/m^3)	Total modelled NH_3 after adjustment (µg/m^3)
T14	0.8	0.8
T59	0.8	0.8
T61	0.8	0.9
T62	0.9	1.0
T65	1.0	1.0
T67	0.9	0.9
T68	0.8	0.8
R1.1	1.2	1.3
R1.2	1.1	1.2
R1.3	1.0	1.1
R1.4	0.9	0.9
R2.1	1.4	1.4
R2.2	1.3	1.4
R2.3	1.2	1.3
R2.4	1.0	1.1
R3.1	1.1	1.1
R3.2	1.0	1.1
R3.3	0.9	0.9
R3.4	0.8	0.9

Site ID	Total modelled NH_3 before adjustment ($\mu g/m^3$)	Total modelled NH_3 after adjustment ($\mu g/m^3$)
D3	1.0	1.0
D6	1.3	1.4

Table 9: NH_3 Model Verification details

Number of Sites	Number of Monitoring Sites within ±10% of the Monitored Concentration Pre-Adjustment	RMSE pre-adjustment ($\mu g/m^3$)	Model Adjustment Factor Applied	Number of Sites within ±10% of the Monitored Concentration Post Adjustment	RMSE post adjustment ($\mu g/m^3$)	Fractional Bias post adjustment)
21	10	0.19	1.13	8	0.18	0.0

Deposition velocities

3.67 Deposited nitrogen from road traffic derived NH_3 and NO_2 was estimated using the deposition velocities presented in Table 3. The conversion rates were applied to the final modelled NO_2 and NH_3 concentrations from road traffic, to provide kgN/ha/year. All of the transects were modelled and analysed as heathland / grassland i.e. 'short vegetation' was used at all locations as Ashdown Forest SAC is designated for heathland and Lewes Downs SAC is designated for calcareous grassland.

Figure 4: WDC Air Quality NO_2 Monitoring Sites in relation to Ashdown Forest SAC

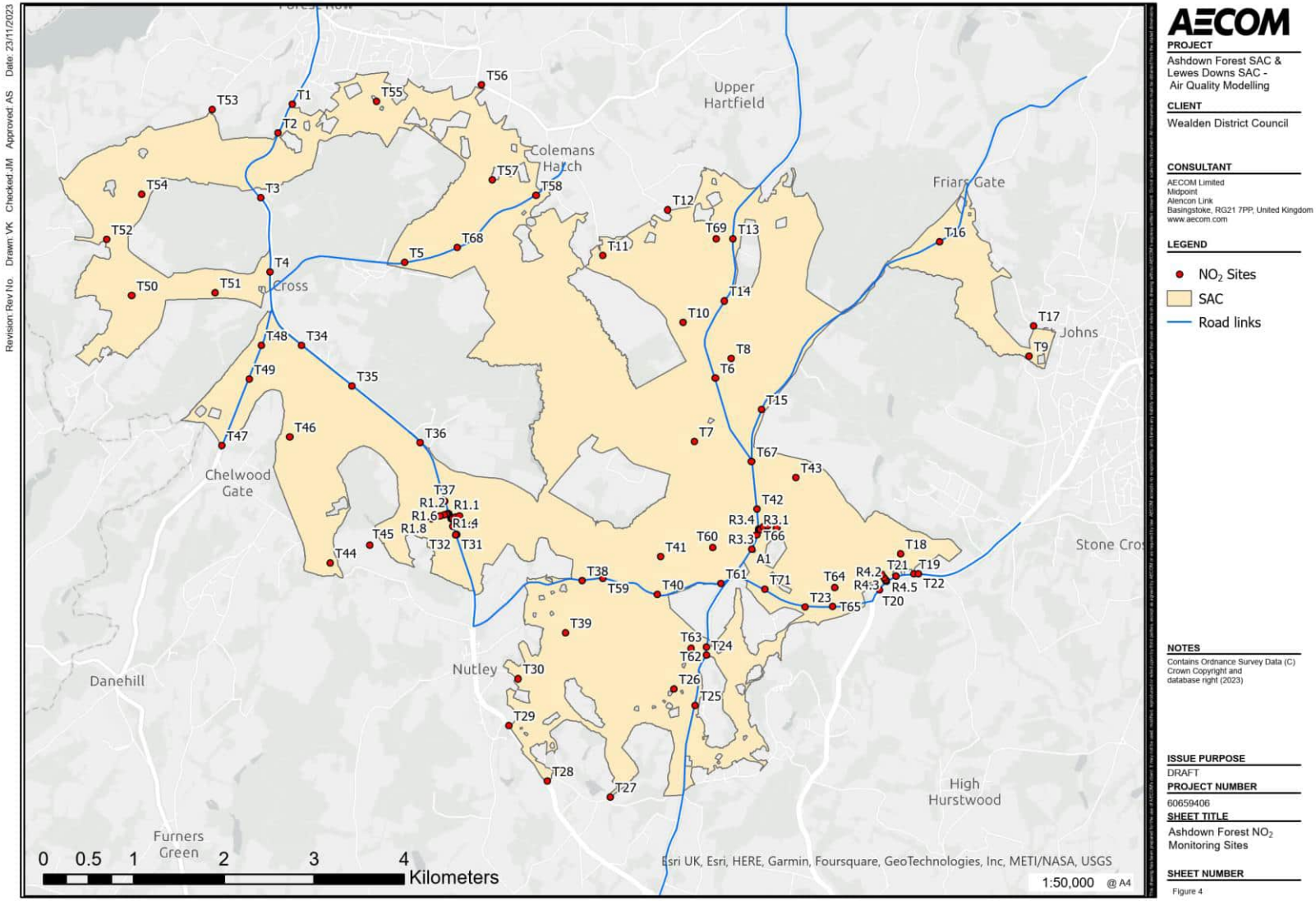
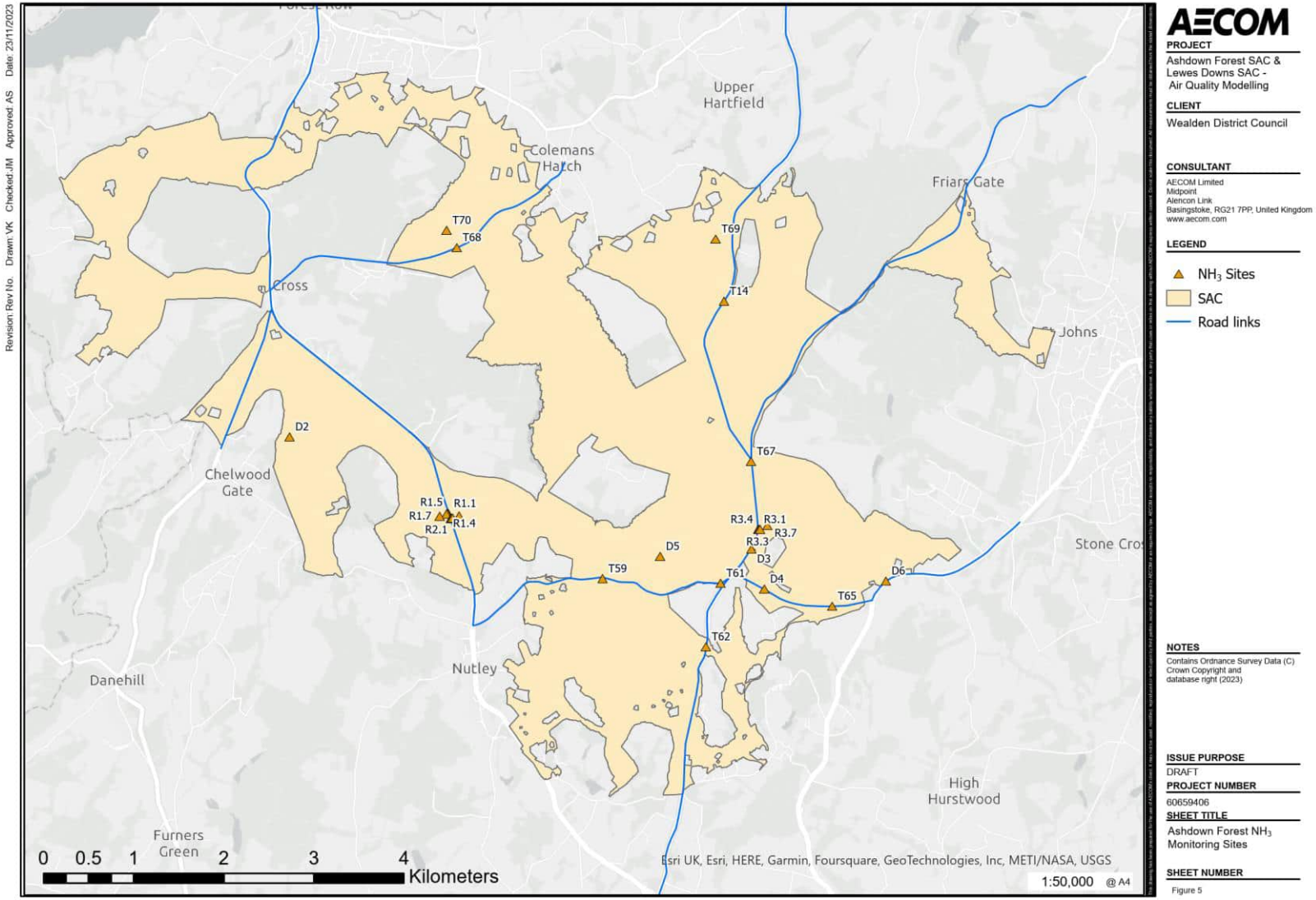


Figure 5: WDC NH_3 Monitoring Sites in relation to Ashdown Forest SAC



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5. Annexes

A.1 Traffic Data

Link	2019 Base AADT	2019 Base HDV %	2019 Base Speed (kph)	2040 DM AADT	2040 DM HDV %	2040 DM Speed (kph)	2040 DS AADT	2040 DS HDV %	2040 DS4 Speed (kph)
4	4454.6	3.0	43.2	5366.5	3.0	43.7	5520.1	3.0	43.7
5	11670.2	3.0	53.9	14059.1	3.0	53.9	20988.0	3.0	53.9
6	15560.4	3.0	52.6	18745.6	3.0	52.5	24421.4	3.0	52.4
7	4723.4	3.0	43.2	5690.3	3.0	43.7	5874.6	3.0	43.7
8	16078.2	3.0	52.6	19369.4	3.0	52.5	25211.1	3.0	52.4
9	5915.4	3.0	42.8	7126.2	3.0	42.7	7654.5	3.0	42.7
10	11603.2	3.0	96.6	13978.4	3.0	96.6	15243.8	3.0	96.6
11	8651.9	5.6	62.0	10423.0	5.6	57.7	17450.1	4.6	56.1
12	2067.0	1.8	42.2	2490.1	1.8	42.9	2533.1	1.8	42.9
13	3089.7	4.7	41.5	3722.2	4.7	41.6	3863.5	4.6	41.6
14	5427.0	3.7	41.3	6537.9	3.7	41.3	7232.1	3.6	41.3
15	5399.4	2.2	51.5	6504.6	2.2	51.5	6516.9	2.2	51.5
16	4229.2	1.9	42.9	5094.9	1.9	42.9	5617.1	2.0	42.9
17	2282.0	2.7	42.9	2749.1	2.7	43.0	2749.1	2.7	43.0
18	2708.9	2.3	42.8	3263.4	2.3	42.9	3275.7	2.3	42.9
19	11898.3	3.0	53.9	14333.9	3.0	53.9	21262.8	3.0	53.9
20	24619.7	4.3	48.3	29659.4	4.3	48.3	36379.4	4.1	48.3

A.2 Modelled Ecological Receptor Locations

Transect WDC1	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC2	X co-ordinate (m)	Y co-ordinate (m)
WDC1_1m	546585	127072	WDC2_1m	546579	127073
WDC1_10m	546594	127070	WDC2_10m	546570	127075
WDC1_20m	546604	127068	WDC2_20m	546560	127077
WDC1_30m	546614	127066	WDC2_30m	546550	127079
WDC1_40m	546624	127064	WDC2_40m	546541	127081
WDC1_50m	546633	127062	WDC2_50m	546531	127083
WDC1_60m	546643	127060	WDC2_60m	546521	127086
WDC1_70m	546653	127058	WDC2_70m	546511	127088
WDC1_80m	546663	127055	WDC2_80m	546501	127090
WDC1_90m	546672	127053	WDC2_90m	546492	127092
WDC1_100m	546682	127051	WDC2_100m	546482	127094
WDC1_110m	546692	127049	WDC2_110m	546472	127096
WDC1_120m	546702	127047	WDC2_120m	546462	127098
WDC1_130m	546712	127045	WDC2_130m	546453	127100
WDC1_140m	546721	127043	WDC2_140m	546443	127102
WDC1_150m	546731	127041	WDC2_150m	546433	127104
WDC1_160m	546741	127039	WDC2_160m	546423	127106
WDC1_170m	546751	127037	WDC2_170m	546413	127108
WDC1_180m	546761	127035	WDC2_180m	546404	127110
WDC1_190m	546770	127033	WDC2_190m	546394	127113
WDC1_200m	546780	127031	WDC2_200m	546384	127115

Transect WDC3	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC4	X co-ordinate (m)	Y co-ordinate (m)
WDC3_1m	547344	129673	WDC4_1m	547338	129672
WDC3_10m	547353	129673	WDC4_10m	547329	129671
WDC3_20m	547363	129674	WDC4_20m	547319	129670
WDC3_30m	547373	129675	WDC4_30m	547309	129669
WDC3_40m	547383	129676	WDC4_40m	547299	129669
WDC3_50m	547393	129677	WDC4_50m	547289	129668
WDC3_60m	547403	129678	WDC4_60m	547279	129667
WDC3_70m	547413	129679	WDC4_70m	547269	129666
WDC3_80m	547423	129679	WDC4_80m	547259	129665
WDC3_90m	547433	129680	WDC4_90m	547249	129664
WDC3_100m	547443	129681	WDC4_100m	547239	129663
WDC3_110m	547453	129682	WDC4_110m	547229	129662
WDC3_120m	547463	129683	WDC4_120m	547219	129662
WDC3_130m	547473	129684	WDC4_130m	547209	129661

WDC3_140m	547483	129685	WDC4_140m	547199	129660
WDC3_150m	547493	129686	WDC4_150m	547189	129659
WDC3_160m	547503	129686	WDC4_160m	547179	129658
WDC3_170m	547512	129687	WDC4_170m	547169	129657
WDC3_180m	547522	129688	WDC4_180m	547159	129656
WDC3_190m	547532	129689	WDC4_190m	547149	129655
WDC3_200m	547542	129690	WDC4_200m	547139	129655

Transect WDC5	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC6	X co-ordinate (m)	Y co-ordinate (m)
WDC5_1m	546918	130941	WDC6_1m	546913	130940
WDC5_10m	546927	130944	WDC6_10m	546904	130938
WDC5_20m	546937	130946	WDC6_20m	546895	130935
WDC5_30m	546946	130949	WDC6_30m	546885	130932
WDC5_40m	546956	130951	WDC6_40m	546875	130930
WDC5_50m	546966	130954	WDC6_50m	546866	130927
WDC5_60m	546975	130956	WDC6_60m	546856	130925
WDC5_70m	546985	130959	WDC6_70m	546846	130922
WDC5_80m	546995	130962	WDC6_80m	546837	130920
WDC5_90m	547004	130964	WDC6_90m	546827	130917
WDC5_100m	547014	130967	WDC6_100m	546817	130914
WDC5_110m	547024	130969	WDC6_110m	546808	130912
WDC5_120m	547033	130972	WDC6_120m	546798	130909
WDC5_130m	547043	130975	WDC6_130m	546789	130907
WDC5_140m	547053	130977	WDC6_140m	546779	130904
WDC5_150m	547062	130980	WDC6_150m	546769	130901
WDC5_160m	547072	130982	WDC6_160m	546760	130899
WDC5_170m	547082	130985	WDC6_170m	546750	130896
WDC5_180m	547091	130988	WDC6_180m	546740	130894
WDC5_190m	547101	130990	WDC6_190m	546731	130891
WDC5_200m	547110	130993	WDC6_200m	546721	130888

Transect WDC7	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC8	X co-ordinate (m)	Y co-ordinate (m)
WDC7_1m	546969	131861	WDC8_1m	546965	131863
WDC7_10m	546976	131855	WDC8_10m	546957	131868
WDC7_20m	546985	131850	WDC8_20m	546949	131874
WDC7_30m	546993	131844	WDC8_30m	546941	131880
WDC7_40m	547001	131838	WDC8_40m	546933	131886
WDC7_50m	547009	131832	WDC8_50m	546925	131892
WDC7_60m	547017	131826	WDC8_60m	546916	131898
WDC7_70m	547025	131820	WDC8_70m	546908	131903
WDC7_80m	547033	131815	WDC8_80m	546900	131909
WDC7_90m	547042	131809	WDC8_90m	546892	131915

WDC7_100m	547050	131803	WDC8_100m	546884	131921
WDC7_110m	547058	131797	WDC8_110m	546876	131927
WDC7_120m	547066	131791	WDC8_120m	546868	131932
WDC7_130m	547074	131786	WDC8_130m	546860	131938
WDC7_140m	547082	131780	WDC8_140m	546851	131944
WDC7_150m	547090	131774	WDC8_150m	546843	131950
WDC7_160m	547099	131768	WDC8_160m	546835	131956
WDC7_170m	547107	131762	WDC8_170m	546827	131961
WDC7_180m	547115	131757	WDC8_180m	546819	131967
WDC7_190m	547123	131751	WDC8_190m	546811	131973
WDC7_200m	547131	131745	WDC8_200m	546803	131979

Transect WDC9	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC10	X co-ordinate (m)	Y co-ordinate (m)
WDC9_1m	547915	128521	WDC10_1m	547915	128515
WDC9_10m	547917	128530	WDC10_10m	547914	128506
WDC9_20m	547919	128540	WDC10_20m	547912	128496
WDC9_30m	547921	128550	WDC10_30m	547910	128486
WDC9_40m	547922	128560	WDC10_40m	547908	128476
WDC9_50m	547924	128569	WDC10_50m	547907	128467
WDC9_60m	547926	128579	WDC10_60m	547905	128457
WDC9_70m	547927	128589	WDC10_70m	547903	128447
WDC9_80m	547929	128599	WDC10_80m	547901	128437
WDC9_90m	547931	128609	WDC10_90m	547900	128427
WDC9_100m	547933	128619	WDC10_100m	547898	128417
WDC9_110m	547934	128629	WDC10_110m	547896	128407
WDC9_120m	547936	128638	WDC10_120m	547894	128398
WDC9_130m	547938	128648	WDC10_130m	547893	128388
WDC9_140m	547940	128658	WDC10_140m	547891	128378
WDC9_150m	547941	128668	WDC10_150m	547889	128368
WDC9_160m	547943	128678	WDC10_160m	547888	128358
WDC9_170m	547945	128688	WDC10_170m	547886	128348
WDC9_180m	547947	128697	WDC10_180m	547884	128338
WDC9_190m	547948	128707	WDC10_190m	547882	128329
WDC9_200m	547950	128717	WDC10_200m	547881	128319

Transect WDC11	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC12	X co-ordinate (m)	Y co-ordinate (m)
WDC11_1m	546084	128719	WDC12_1m	546080	128714
WDC11_10m	546089	128726	WDC12_10m	546075	128707
WDC11_20m	546095	128734	WDC12_20m	546069	128699
WDC11_30m	546101	128742	WDC12_30m	546063	128691
WDC11_40m	546107	128750	WDC12_40m	546057	128683
WDC11_50m	546112	128758	WDC12_50m	546051	128675

WDC11_60m	546118	128767	WDC12_60m	546045	128667
WDC11_70m	546124	128775	WDC12_70m	546040	128659
WDC11_80m	546130	128783	WDC12_80m	546034	128650
WDC11_90m	546136	128791	WDC12_90m	546028	128642
WDC11_100m	546142	128799	WDC12_100m	546022	128634
WDC11_110m	546148	128807	WDC12_110m	546016	128626
WDC11_120m	546154	128815	WDC12_120m	546010	128618
WDC11_130m	546159	128823	WDC12_130m	546004	128610
WDC11_140m	546165	128831	WDC12_140m	545998	128602
WDC11_150m	546171	128839	WDC12_150m	545993	128594
WDC11_160m	546177	128847	WDC12_160m	545987	128586
WDC11_170m	546183	128856	WDC12_170m	545981	128578
WDC11_180m	546189	128864	WDC12_180m	545975	128570
WDC11_190m	546195	128872	WDC12_190m	545969	128561
WDC11_200m	546201	128880	WDC12_200m	545963	128553
Transect WDC13	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC14**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC13_1m	544048	129224	WDC14_1m	544041	129222
WDC13_10m	544057	129226	WDC14_10m	544032	129219
WDC13_20m	544066	129229	WDC14_20m	544023	129216
WDC13_30m	544076	129232	WDC14_30m	544013	129213
WDC13_40m	544085	129235	WDC14_40m	544004	129210
WDC13_50m	544095	129238	WDC14_50m	543994	129207
WDC13_60m	544104	129241	WDC14_60m	543984	129204
WDC13_70m	544114	129244	WDC14_70m	543975	129202
WDC13_80m	544124	129247	WDC14_80m	543965	129199
WDC13_90m	544133	129250	WDC14_90m	543956	129196
WDC13_100m	544143	129253	WDC14_100m	543946	129193
WDC13_110m	544152	129256	WDC14_110m	543937	129190
WDC13_120m	544162	129259	WDC14_120m	543927	129187
WDC13_130m	544171	129261	WDC14_130m	543918	129184
WDC13_140m	544181	129264	WDC14_140m	543908	129181
WDC13_150m	544191	129267	WDC14_150m	543898	129178
WDC13_160m	544200	129270	WDC14_160m	543889	129175
WDC13_170m	544210	129273	WDC14_170m	543879	129172
WDC13_180m	544219	129276	WDC14_180m	543870	129169
WDC13_190m	544229	129279	WDC14_190m	543860	129166
WDC13_200m	544238	129282	WDC14_200m	543851	129164
Transect WDC15	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC16**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC15_1m	541706	131005	WDC16_1m	541700	131007
WDC15_10m	541715	131002	WDC16_10m	541691	131009

WDC15_20m	541725	131000	WDC16_20m	541682	131012
WDC15_30m	541735	130997	WDC16_30m	541672	131014
WDC15_40m	541744	130995	WDC16_40m	541662	131017
WDC15_50m	541754	130992	WDC16_50m	541653	131020
WDC15_60m	541763	130989	WDC16_60m	541643	131022
WDC15_70m	541773	130987	WDC16_70m	541633	131025
WDC15_80m	541783	130984	WDC16_80m	541624	131027
WDC15_90m	541792	130982	WDC16_90m	541614	131030
WDC15_100m	541802	130979	WDC16_100m	541605	131033
WDC15_110m	541812	130976	WDC16_110m	541595	131035
WDC15_120m	541821	130974	WDC16_120m	541585	131038
WDC15_130m	541831	130971	WDC16_130m	541576	131040
WDC15_140m	541841	130969	WDC16_140m	541566	131043
WDC15_150m	541850	130966	WDC16_150m	541556	131046
WDC15_160m	541860	130964	WDC16_160m	541547	131048
WDC15_170m	541870	130961	WDC16_170m	541537	131051
WDC15_180m	541879	130958	WDC16_180m	541527	131053
WDC15_190m	541889	130956	WDC16_190m	541518	131056
WDC15_200m	541899	130953	WDC16_200m	541508	131058

Transect WDC17	X co-ordinate (m)	Y co-ordinate (m)	Transect WDC18	X co-ordinate (m)	Y co-ordinate (m)
WDC17_1m	541734	133412	WDC18_1m	541728	133417
WDC17_10m	541741	133407	WDC18_10m	541721	133422
WDC17_20m	541750	133401	WDC18_20m	541713	133428
WDC17_30m	541758	133395	WDC18_30m	541704	133434
WDC17_40m	541766	133390	WDC18_40m	541696	133439
WDC17_50m	541774	133384	WDC18_50m	541688	133445
WDC17_60m	541782	133378	WDC18_60m	541680	133451
WDC17_70m	541790	133372	WDC18_70m	541672	133456
WDC17_80m	541799	133367	WDC18_80m	541663	133462
WDC17_90m	541807	133361	WDC18_90m	541655	133468
WDC17_100m	541815	133355	WDC18_100m	541647	133474
WDC17_110m	541823	133350	WDC18_110m	541639	133479
WDC17_120m	541831	133344	WDC18_120m	541631	133485
WDC17_130m	541840	133338	WDC18_130m	541622	133491
WDC17_140m	541848	133332	WDC18_140m	541614	133497
WDC17_150m	541856	133327	WDC18_150m	541606	133502
WDC17_160m	541864	133321	WDC18_160m	541598	133508
WDC17_170m	541872	133315	WDC18_170m	541590	133514
WDC17_180m	541881	133309	WDC18_180m	541582	133520
WDC17_190m	541889	133304	WDC18_190m	541573	133525

WDC17_200m	541897	133298	WDC18_200m	541565	133531
Transect WDC19	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect WDC20**	**X co-ordinate (m)**	**Y co-ordinate (m)**
WDC19_1m	548790	128796	WDC20_1m	547928	131484
WDC19_10m	548785	128804	WDC20_10m	547922	131490
WDC19_20m	548779	128812	WDC20_20m	547915	131497
WDC19_30m	548774	128820	WDC20_30m	547908	131504
WDC19_40m	548768	128829	WDC20_40m	547901	131511
WDC19_50m	548763	128837	WDC20_50m	547894	131518
WDC19_60m	548757	128845	WDC20_60m	547887	131525
WDC19_70m	548751	128854	WDC20_70m	547880	131533
WDC19_80m	548746	128862	WDC20_80m	547872	131540
WDC19_90m	548740	128870	WDC20_90m	547865	131547
WDC19_100m	548735	128878	WDC20_100m	547858	131554
WDC19_110m	548729	128887	WDC20_110m	547851	131561
WDC19_120m	548723	128895	WDC20_120m	547844	131568
WDC19_130m	548718	128903	WDC20_130m	547837	131575
WDC19_140m	548712	128912	WDC20_140m	547830	131582
WDC19_150m	548707	128920	WDC20_150m	547823	131589
WDC19_160m	548701	128928	WDC20_160m	547816	131596
WDC19_170m	548695	128936	WDC20_170m	547809	131603
WDC19_180m	548690	128945	WDC20_180m	547802	131610
WDC19_190m	548684	128953	WDC20_190m	547795	131617
WDC19_200m	548679	128961	WDC20_200m	547788	131624
Transect LD1	**X co-ordinate (m)**	**Y co-ordinate (m)**	**Transect LD2**	**X co-ordinate (m)**	**Y co-ordinate (m)**
LD1_12.35m	542275	110918	LD2_63.1m	542821	111422
LD1_20m	542282	110921	LD2_70m	542822	111415
LD1_30m	542292	110925	LD2_80m	542824	111405
LD1_40m	542301	110929	LD2_90m	542826	111395
LD1_50m	542310	110933	LD2_100m	542827	111386
LD1_60m	542319	110936	LD2_110m	542829	111376
LD1_70m	542328	110940	LD2_120m	542831	111366
LD1_80m	542338	110944	LD2_130m	542833	111356
LD1_90m	542347	110948	LD2_140m	542834	111346
LD1_100m	542356	110952	LD2_150m	542836	111336
LD1_110m	542365	110956	LD2_160m	542838	111327
LD1_120m	542374	110960	LD2_170m	542839	111317
LD1_130m	542384	110964	LD2_180m	542841	111307
LD1_140m	542393	110968	LD2_190m	542843	111297
LD1_150m	542402	110972	LD2_200m	542845	111287
LD1_160m	542411	110975			

LD1_170m	542420	110979	
LD1_180m	542430	110983	
LD1_190m	542439	110987	
LD1_200m	542448	110991	

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