

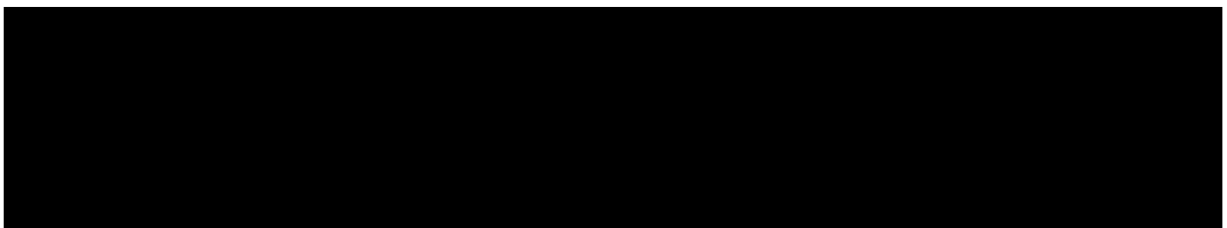
APPENDIX 9.7
SHADOW HABITATS REGULATIONS ASSESSMENT

FORD AIRFIELD, WEST SUSSEX

SHADOW HABITATS REGULATIONS ASSESSMENT

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Author:	 Georgina Timmis BSc (Hons) MCIEEM Senior Ecologist
Checked by:	 Richard Chilcott MSc MCIEEM Principal Ecologist
Reviewed by:	 Simon Boswell MSc CEcol MCIEEM Principal Ecologist

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FORD AIRFIELD, WEST SUSSEX

SHADOW HABITATS REGULATIONS ASSESSMENT

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1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) has been appointed by Wates Developments Ltd and Redrow Homes Ltd to provide evidence to support a Habitats Regulations Assessment (HRA) of the proposed construction of a mixed development including approximately 1,500 dwellings on land at Ford Airfield, West Sussex (hereafter referred to as 'the Site').

A range of ecological survey work has been undertaken at the site including a Phase 1 ecological assessment originally undertaken by Artemis in August 2015 and August 2016 (Artemis, 2016), wintering bird surveys undertaken by Artemis in 2015/2016 (Artemis, 2016) and a range of protected species surveys, including updating wintering bird surveys, undertaken by ECOSA in 2018/2019 (Barton Wilmore, 2019).

1.2 The Site

The Site is located in Ford, West Sussex, centred on National Grid Reference (NGR) SU 9938 0291 (Map 1).

The Site extends to approximately 95 hectares and comprises area of land formerly in use as an airfield. Large areas of the Site now comprise agricultural fields, separated by hedgerows and trees. Part of the north-south and east-west runways of the former airfield are located on the Site. Located to the northern end of the north-south runway are two large warehouse building, used as a Sports Arena and Amusement centre.

The Site is bounded by Ford Lane to the north, Yapton Road (B2233) to the west, Horsemere Green Lane to the south and Ford Road to the east. Areas of residential and industrial development lie adjacent to the site. A waste incinerator, a waste water treatment works and a materials recycling facility are located in the centre of the site, but outside the red line boundary.

The wider landscape comprises the settlements of Ford to the north-east, Yapton to the north-west and Climping to the south-east. The Site and surrounding settlements are surrounded by agricultural land. The River Arun lies approximately 440 metres west of the site.

1.3 Aims and Scope of Report

This shadow Habitats Regulations Assessment Report is aimed at assessing the Likely Significant Effects of the proposals upon internationally designated sites (hereafter referred to as European Sites) and their qualifying features. The objectives of this assessment are:

- Identify any aspects of the proposed development that would cause an adverse effect on the integrity of Natura 2000 sites, otherwise known as European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites¹), either in isolation or in combination with other plans and projects. In addition, it is a matter of law that candidate SAC (cSAC) are considered in this process. It is also a matter of UK Government policy that potential SACs (pSACs) and potential SPAs (pSPA) are considered; and
- To advise on appropriate mechanisms for delivering mitigation where such effects are identified.

1.4 Site Proposals

The proposals entail the redevelopment of the site to provide approximately 1,500 residential units, a local centre, care home, primary school and employment land. Formal sports pitches, allotments and areas of public open space are also proposed as part of the scheme. The development will be serviced by Sustainable Urban Drainage System (SUDS) basins.

¹ Wetlands of International Importance designated under the Ramsar Convention 1979

2.0 HABITATS REGULATIONS ASSESSMENT PROCESS AND METHODOLOGY

2.1 Introduction

This section provides an outline of the Habitats Regulations and the Habitats Regulations Assessment process.

2.2 The Basis of Habitats Regulations Assessment

The need for HRA arises from European Union Directive 2009/147/EC on the conservation of wild birds (the Birds Directive) and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). This has been translated into UK legislation through The Habitats Regulations or the Conservation of Habitats and Species Regulations 2017 (as amended).

The aim of the legislation is to conserve habitats and species in Europe by establishing a network of important sites.

Under Article 6(3) of the Habitats Directive, an Appropriate Assessment of implications for the European site in view of the site's conservation objectives is required where a plan or project is likely to have a significant effect upon a European site, either alone or in combination with other projects (Infrastructure Planning Commission, 2011).

The Habitats Regulations apply the 'precautionary principle' to SACs, SPAs and Ramsar sites (collectively referred to as European sites in this report). This means that when there is sufficient scientific uncertainty about the likely effects of the proposals under consideration, the decision taken will be precautionary in nature to fully protect the qualifying features of European Sites.

2.3 A Proportionate Assessment

Draft Department for Communities and Local Government (DCLG) guidance (DCLG, 2006) makes it clear that when implementing HRA of land-use plans, the HRA should be undertaken at a level of detail that is appropriate and proportional to the level of detail provided within the plan itself:

“The comprehensiveness of the assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a project or strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project.”

More recently, the Court of Appeal (No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015) ruled that providing the Council (or other competent authority) was duly satisfied that proposed mitigation could

be ‘*achieved in practice*’ to satisfy that development, in this case a proposed replacement bridge, would have no adverse effect, then this would suffice.

2.4 The Process of Habitats Regulations Assessment

The stages of HRA are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan or project until no Likely Significant Effects remain.

The four stages of HRA (Infrastructure Planning Commission, 2011) are detailed in **Table 1**.

Table 1: HRA screening process

Stage	Description
Stage 1 Screening	The process to identify the likely impacts of a project upon a European site, either alone or in combination with other plans and projects, and consider whether there is a Likely Significant Effect.
Stage 2 Appropriate Assessment	The consideration of the impacts on the integrity of the European site, either alone or in combination with other plans and projects, with regard to the site's structure and function and its conservation objectives. Where there are adverse impacts, an assessment of mitigation options is carried out to determine adverse effect on the integrity of the site. If these mitigation options cannot avoid adverse effects, and that there will be an adverse effect on site integrity, then development consent can only be given if stages 3 and 4 are followed.
Stage 3 Assessment of Alternative Solutions	Examining alternative ways of achieving the objectives of the project to establish whether there are solutions that would avoid or have a lesser effect on European sites.
Stage 4 Imperative Reasons of Overriding Public Interest (IROPI)	This is the assessment where no alternative solution exists and where adverse impacts remain. The process to assess whether the development is necessary for IROPI and, if so, the potential compensatory measures needed to maintain the overall coherence of the site or integrity of the European site network.

The first stage of any HRA is a Likely Significant Effects test - essentially a high level risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

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

If the proposed development cannot be screened out as being unlikely to lead to significant effects, then the next stage of HRA, known as Appropriate Assessment is required which includes detailed analysis of identified Likely Significant Effects in order to develop appropriate mitigation that will enable the Local Planning Authority (LPA) in

their role as ‘competent authority’ to conclude that no adverse effect on the integrity of European sites will result.

A recent European Court of Justice ruling (People Over Wind and Sweetman, preliminary ruling High Court - Ireland) has determined that it is not sufficient to screen out plans or projects that include mitigation that would not form part of the plan or project were it not for the consideration of the conservation objectives of Natura 2000 sites. In other words, the project must be screened on its own merits and if mitigation would be required to prevent Likely Significant Effects on European sites then this must be subject to an Appropriate Assessment.

If, at the stage of Appropriate Assessment, Likely Significant Effects still cannot be ruled out, the plan or project may only progress if it can be demonstrated that there are no alternative solutions; that Imperative Reasons of Overriding Public Importance (IROPI) can be met and that sufficient compensatory measures have been secured.

2.5 Scope of the Habitats Regulations Assessment

Types of European site considered in the HRA screening process are detailed in **Table 2**.

Table 2: European Sites included within the HRA process

Designation Type	Origin	Description
Special Protection Area (SPA)	EU Birds Directive	Strictly protected sites classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species. SPAs form part of the Natura 2000 network.
Potential SPA (pSPA)	EU Birds Directive	Sites that are proposed as SPAs but have yet to be formally classified. pSPA sites form part of the Natura 2000 network.
Special Area of Conservation (SAC)	EU Habitats Directive	Strictly protected sites forming part of a European network of important high-quality conservation sites that will make a significant contribution to conserving the habitat types and species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). SACs form part of the Natura 2000 network.
Candidate SAC (cSAC)	EU Habitats Directive	Sites that are proposed as SACs and have been submitted to the European Union but have yet to be formally designated. cSACs form part of the Natura 2000 network.

Table 2: European Sites included within the HRA process

Designation Type	Origin	Description
Ramsar	Ramsar Convention	Internationally important wetland habitats are recognised under the Ramsar Convention, with Ramsar sites overlying SPA classifications and SAC designations. While the criteria differ from those of SPAs and SACs, the criteria for Ramsar sites are equally significant in terms of maintaining the ecological integrity of the site. Ramsar designated sites are not part of the Natura 2000 network (although by proxy they relate to the same sites). However, they are assessed within HRA.

The Arun Valley SPA is the only European Site that has been scoped in for assessment within the Shadow HRA, due to the potential for pathways of impact to exist that could link the proposed development to the SPA.

2.5.1 Conservation Status and Conservation Objectives

SPAs

SPAs have set conservation objectives defining what constitutes a favourable conservation status of each primary qualifying feature. These are set out by Natural England and describe the targets to be met in order for the feature to qualify as 'favourable'. Conservation objectives vary from site to site but follow the same general principles:

- To avoid deterioration of the qualifying habitats and the habitats of qualifying species;
- To avoid significant disturbance of qualifying species;
- To ensure the integrity of the site is maintained; and
- To ensure that the site makes a full contribution to achieving the favourable conservation status of each of the qualifying features.

The aims are broadly to maintain or restore the structure, function, extent, distribution and supporting processes of qualifying natural habitats and habitats of qualifying species, and to maintain or restore the populations and distribution of qualifying species.

A plan or project requiring HRA must demonstrate that these conservation objectives will not be subject to Likely Significant Effects that are adverse, either alone or in

combination with other plans and projects through the iterative process of HRA (Paragraph 2.4).

2.5.2 The ‘In Combination’ Scope

It is a requirement of the Habitat Regulations that the impacts and effects of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question. In practice, ‘in combination assessment’ is of greatest importance when a plan or project would otherwise be screened out because the individual contribution is inconsequential.

3.0 PLANNING POLICY CONTEXT

3.1 Introduction

This section summarises the planning policy in relation to ecology and biodiversity within the Arun District administrative area with specific reference to those elements in relation to European sites.

3.2 National Policy

The National Planning Policy Framework (NPPF) sets out the government's requirements for the planning system in England. The original document was published in 2012 with the most recent revision published in February 2019. A number of sections of the NPPF are relevant when taking into account development proposals and the environment. As set out within Paragraph 11 of the NPPF *"Plans and decisions should apply a presumption in favour of sustainable development"*. However, Paragraph 177 goes on to state that *"The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site² (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."*

The general impetus of the NPPF in relation to ecology and biodiversity is for development proposals to not only minimise the impacts on biodiversity but also to provide enhancement. Paragraph 170 states that the planning system should contribute to and enhance the natural environment by *"...minimising impacts on biodiversity and providing net gains in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures..."*.

A number of principles are set out in Paragraph 175, including that where harm cannot be adequately avoided then it should be mitigated for, or as a last resort, compensated for. Where impacts occur on nationally designated sites, the benefits must clearly outweigh any adverse impact and incorporating biodiversity in and around developments should be encouraged. Specific reference is also made to the protection of irreplaceable habitats³. Where loss to irreplaceable habitats occurs planning permission would normally be refused unless there are wholly exceptional reasons and an adequate compensation strategy is in place. Paragraph 175 also states *"development whose primary objective is to conserve or enhance biodiversity should*

² The NPPF defines a habitats site as *"Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites."*

³ The NPPF defines irreplaceable habitats as *"Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen."*

be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity". Protection of sites proposed as Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites or acting as compensation for SPAs, SACs and Ramsar sites, should receive the same protection as habitat sites.

Government Circular ODPM06/2005 (ODPM, 2005) accompanies the NPPF, adding the following in relation to European sites⁴:

'Regulation 48 of the Habitats Regulations restricts the granting of planning permission for development which is likely to significantly affect a European site...by requiring that an appropriate assessment is first carried out of the implications of the development for the site's conservation objectives...

The decision on whether an appropriate assessment is necessary should be made on a precautionary basis. An appropriate assessment is required where there is a probability or a risk that the plan or project will have significant effects.... either individually or in combination with other projects.... this means that the planning authority should identify the potential risks so far as they may be reasonably foreseeable in light of such information as can reasonably be obtained, and put in place a legally enforceable framework with the aim of preventing the risks from materialising....

Regulation 54(4) of the Habitats Regulations prohibits the grant of outline planning permission unless the planning authority is satisfied, whether by reason of the conditions or limitations imposed on the permission, or otherwise, that no development likely to adversely affect the integrity of a European site could be carried out under the permission...

If the decision-taker is unable to conclude that the proposed development will not adversely affect the integrity of the site, and this effect, or possible effect, will not be removed by conditions or other restrictions, they must not grant planning permission.'

3.3 Local Policy

Local planning policy within Arun District is provided by the policies within the Arun Local Plan 2018. Those relevant to European sites are summarised below.

⁴ ODPM06/2005 was published prior to the 2017 update to the Habitats Regulations and therefore, specific Regulation numbers have since been amended

Policy ENV SP1 – Natural Environment

Arun District Council will encourage and promote the preservation, restoration and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of designated and non-designated sites. Where possible it will also promote the creation of new areas for habitats and species.

A number of statutory and non-statutory sites are listed, however, the Arun Valley SPA is the only site relevant to this assessment.

Policy ENV DM1 – Designated Sites of Biodiversity or Geological Importance

Proposed development likely to have an adverse effect on designated sites will not normally be permitted unless in exceptional circumstances.

Policy H SP2c – Inland Arun – Ford (SD8)

Development proposals in the Ford Strategic Allocation will provide at least 1,500 dwellings over the plan period. The site is functionally connected to Arun Valley SPA and development should avoid adverse effects on this designated area.

4.0 DHRA SCREENING – ARUN VALLEY SPA

4.1 Introduction

This section details the screening for Likely Significant Effects process and a discussion of the findings to establish how the Likely Significant Effect outcome was determined.

4.2 Arun Valley SPA Description

The Arun Valley SPA is located approximately ten kilometres north-east of the development site (**Map 1**). The description of the Arun Valley provided by the Joint Nature Conservation Committee (JNCC) is as follows (JNCC, 2001):

*“The Arun Valley in West Sussex is located just north of the South Downs escarpment about 15 km inland from the south coast of England. It consists of low-lying grazing marsh, largely on alluvial soils, but with an area of peat derived from a relict raised bog. Variation in soils and water supply lead to a wide range of ecological conditions and hence a rich flora and fauna. Southern parts of the Arun Valley are fed by calcareous springs, while to the north, where the underlying geology is Greensand, the water is more acidic. The history of management of fields, and their water levels, determines the plant communities present, with drier fields dominated by meadow grasses, Crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne*. In wetter areas, rushes, sedges and tufted hair-grass *Deschampsia cespitosa* are more frequent. Ungrazed fields have developed into fen, scrub or woodland. Fen areas consist of common reed *Phragmites australis*, reed sweet-grass *Glyceria maxima* and greater tussock-sedge *Carex paniculata*, often with scattered elder *Sambucus* species and willow scrub. On firmer ground, there is alder *Alnus glutinosa*, willow *Salix* species, Birch *Betula* species, and willow, with oak *Quercus robur* and hazel *Corylus avellana* woodland on the driest ground. The ditches and margins between grazing marsh fields have an outstanding aquatic flora and invertebrate fauna. The Arun Valley supports important numbers of wintering waterbirds, which feed in the wetter, low-lying fields and along ditches.”*

4.3 Reasons for Designation

The Arun Valley SPA is designated for supporting:

- 155 individual Bewick's swan *Cygnus columbianus bewickii*, representing at least 1.6% of the wintering population in Great Britain (5 year peak mean for 1992/93 to 1996/7);
- A regular overwintering population of 27,241 individual waterfowl (5 year peak mean for 1992/93 to 1996/97) including shoveler *Anas clypeata*, teal *Anas crecca*, wigeon *Anas Penelope* and Bewick's swan.

4.4 Current Threats

According to the Natura 2000 form for the Arun Valley SPA (JNCC, 2015), current threats affecting the site are:

- Pollution to groundwater (point sources and diffuse sources); and
- Human induced changes in hydraulic conditions.

The Habitat Regulations Assessment Appropriate Assessment for the Arun Local Plan (Urban Edge Environmental Consulting, 2017) identified the following impact pathway for the Arun Valley SPA specifically in relation to the Arun Local Plan:

- Impacts on habitats which support the ecological function of the European sites.

4.4.1 Pollution to Groundwater

Groundwater pollution occurs when pollutants are released to the ground and make their way into the groundwater. Movement of water and dispersion within the aquifer spreads the pollutant over a wider area. Groundwater pollution can intersect with groundwater wells or surface water, resulting in harm to associated habitats.

The Joint Nature Conservation Committee (JNCC) (JNCC, 2013) has identified that groundwater pollution may result from:

- Leakages from contaminated sites;
- Waste disposal sites;
- Oil industry infrastructure;
- Mine water;
- Disposal of contaminated water to soakaways;
- Agricultural and forestry activities;
- Septic tanks; and
- Urban land use.

4.4.2 Human Induced Changes in Hydraulic Conditions

The JNCC (JNCC, 2013) has identified that human induced changes in hydraulic conditions may result from:

- Landfill, land reclamation and drying out (polderisation, reclamation of land from sea, estuary or marsh, infilling of ditches, dykes, ponds, pools, marshes or pits, re-cultivation of mining areas);
- Removal of sediments (mud, etc.), including dredging/ removal of limnic sediments, and estuarine and coastal dredging;
- Canalisation & water deviation;
- Flooding modifications, including flooding and lack of flooding;
- Modification of hydrographic functioning, including modification of water flow (tidal and marine currents), structures of inland water courses, standing water

- bodies (e.g. creation of fish ponds), reservoirs, small hydropower projects, weirs, and wave exposure changes;
- Water abstractions from surface waters, including surface water abstractions for agriculture, public water supply, by manufacturing industry, for the production of electricity (cooling), by fish farms, hydro-energy, quarries/open cast sites, for navigation, water transfer, and other major surface water abstractions;
 - Water abstractions from groundwater, including for agriculture, public water supply, by industry, quarries/open cast (coal)sites, and other major groundwater abstractions
 - Raising the groundwater table/artificial recharge of groundwater, including discharges to groundwater for artificial recharge purposes, returns of groundwater, mine water rebound, and other major groundwater recharge;
 - Saltwater intrusion of groundwater;
 - Management of aquatic and bank vegetation for drainage purposes;
 - Siltation rate changes, dumping, depositing of dredged deposits;
 - Dykes, embankments, artificial beaches, including sea defence or coast protection works, tidal barrages, dykes and flooding defence in inland water systems;
 - Abandonment of management of water bodies;
 - Altered water quality due anthropogenic changes in salinity (marine and coastal waters, e.g. algal growth on reefs); and
 - Other human induced changes in hydraulic conditions.

4.4.3 Impacts on Habitats which Support the Ecological Function of European Sites

Natural England has published a map of 'Functionally Connected Land' surrounding the Arun Valley SPA and associated Impact Risk Zones which are subdivided into two categories:

- Impact Risk Zone 1: A core area where there is good evidence/high probability of use by SPA bird species. Any new residential developments outside existing built up areas affecting this zone would normally require bird surveys to demonstrate no significant effect on the SPA; and
- Impact Risk Zone 2: A 500 metre buffer around the Impact Risk Zone 1 as well as some areas of additional suitable habitat where there are records of Bewick's swan and/or other SSSI notified bird species. In this second zone, it is only potential impacts from larger scaled developments which are of concern.

The Habitat Regulations Assessment Appropriate Assessment for the Arun Local Plan (Urban Edge Environmental Consulting, 2017) has identified that development within the Arun Local Plan, within Impact Risk Zone 2, has potential to result in:

- Direct permanent impacts as a result of the loss of Functionally Connected Land through built development; and
- Indirect temporary impacts as a result of changes in recreational use of Functionally Connected Land due to developments on adjacent land.

The magnitude of the potential impact is considered to be small as strategic sites within Impact Risk Zone 2 (including the Ford Airfield site) make up 74.3 hectares, representing 0.94% of the Impact Risk Zone 2 area (Urban Edge Environmental Consulting, 2017). However, there is potential for cumulative effects in combination with other plans and projects.

The impacts associated with development within Impact Risk Zone 2 are discussed in more detail below.

Loss of Functionally Connected Land

Loss of supporting habitat may result in reduced winter survival rates of the Bewick's swan population associated with the Arun Valley SPA and therefore undermine the integrity of the SPA.

Recreational use of Functionally Connected Land

When birds are disturbed (i.e. caused to alter their behaviour to seek avoidance from a perceived threat) they are expending energy unnecessarily and the time they spend responding to disturbance is time that is not spent feeding (Riddington, et al., 1996). In addition, displacement of birds from one site to others can increase the pressure on the resources available within the remaining sites, as they have to sustain a greater number of birds (Gill, et al., 1998).

The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long duration. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound or movement or minimal vibration. The further any activity is from the birds, the less likely it is to result in disturbance.

The factors that influence a species response to a disturbance are numerous, but the three key factors are species sensitivity, proximity of disturbance sources and timing/duration of the potentially disturbing activity.

4.5 Potential Effects of the Proposed Development

4.5.1 Pollution to Groundwater

The proposals entail development of agricultural land into mixed use development. Urban land use is listed by JNCC as having potential to result in groundwater pollution.

However, the Arun Valley SPA is located approximately ten kilometres north-east of the development site. Although groundwater monitoring carried out at the site suggests groundwater flows in an easterly/north-easterly direction contaminants which leach into the groundwater will be diluted and are likely to degrade as they pass through the soils.

The RSK Geo-environmental and Geotechnical Site Assessment Report (RSK, 2018), advises that based on soil samples taken from the site test results show no significant elevated concentrations of contaminants that are likely to leach, in sufficient concentrations to impact on underlying groundwater. The results of groundwater testing indicate that the groundwater within the underlying chalk aquifer did not appear to have been significantly impacted by any existing or historical on or offsite sources.

4.5.2 Human Induced Changes in Hydraulic Conditions

The proposed development does not comprise any of the activities listed by JNCC as likely to result in human induced changes in hydraulic conditions, and therefore no adverse impacts as a result of changes in hydraulic conditions are anticipated.

4.5.3 Impacts on Habitats which Support the Ecological Function of the SPA

Loss of Functionally Connected Land

A small proportion (17 hectares/14.8%) of the Ford Airfield site lies within Impact Risk Zone 2 (**Map 3**).

Wintering bird surveys undertaken by Artemis in 2015/2016 (Artemis, 2016) and by ECOSA in 2018/2019 (Barton Wilmore, 2019) have shown that the site neither supports Bewick's swan nor significant numbers of other waterfowl that form the notable assemblage associated with the Arun Valley SPA. Therefore, on-site habitat is not considered to support the ecological function of the SPA and no adverse impacts as a result of habitat loss are anticipated.

Recreational use of Functionally Connected Land

Consultation with SxBRC produced 38 records of Bewick's swan within two kilometres of the site. Of these 14 records could relate to habitats on or adjacent to the site, however all but one are provided with accuracy of one square kilometre. The majority of these records are dated between 1985 and 1998, with only two more recent records, one in 2010 and one in 2011. The more accurate record notes 14 birds in a field directly adjacent to the western boundary of the site (NGR: TQ003033) but is dated from January 1997. Locations and details of records of Bewick's swan from 2009 onwards are provided on **Map 2**.

There are four public rights of way that pass through suitable habitat for Bewick's swan which lies adjacent to the development site and within Impact Risk Zone 2 (**Map 3**). Of

these, Footpath 1 (as numbered on **Map 3**) is already screened from view by a double hedgerow and therefore recreational use of this footpath is unlikely to result in disturbance to Bewick's swan, if present. However, although parts of Footpath 2, Footpath 3 and Footpath 4 are partially screened, they also include unscreened areas which have potential to result in increased disturbance to Bewick's swan, if present, as a result of increased recreational use.

4.6 Conclusion

Prior to further mitigation, the proposed development cannot be screened out as leading to no Likely Significant Effects on the Arun Valley SPA through disturbance arising from recreational use of functionally connected land adjacent to the site by residents of new dwellings. Therefore, further Appropriate Assessment is necessary and this is considered in Section 5.0 of this report.

5.0 APPROPRIATE ASSESSMENT – ARUN VALLEY SPA

5.1 Introduction

This section details the Appropriate Assessment process and a discussion of the findings relating to mitigation that would be appropriate to enable a conclusion of no Likely Significant Effects to be determined.

5.2 Appropriate Assessment

To avoid disturbance impacts on Bewick's swan using habitats adjacent to the site, stockproof fencing/low lying hedgerows will be established along the edges of the public footpaths to the north and east of the site to prevent access to the fields by humans and dogs and to screen their movement, without inhibiting the view for walkers (**Map 3**). This will avoid disturbance impacts that may result in the loss of habitat functionally connected to the Arun Valley SPA.

The hedgerows bordering Footpath 3 are likely to make the small area of field to the south unsuitable for Bewick's swan as it will be enclosed by hedgerows. However, this represents approximately two hectares of suitable habitat. The area to the north of the footpath represents approximately eight hectares of suitable habitat, and this area will be made more suitable for Bewick's swan as any existing disturbance as a result of the footpath will be screened by the hedgerow and informal access by walkers and their dogs will be prevented. Therefore the minor loss of habitat is considered to represent a neutral effect.

5.3 Conclusion

Prior to Appropriate Assessment, it was determined that the development proposals could not be screened out as having a Likely Significant Effect on the Arun Valley SPA. The proposed development should provide mitigation through restriction of human and dog access to areas of habitat suitable for Bewick's swan and screening of movement on adjacent public footpaths in order to allow a conclusion of no Likely Significant Effects of the development on the Arun Valley SPA, either alone or in combination with other plans and projects. This will allow the proposed development to accord with national and local planning policy, including Policy ENV SP1, Policy ENV DM1 and Policy H SP2c of the Arun Local Plan 2018.

6.0 REFERENCES

Artemis, 2016. *Phase 1 Habitat Survey - Land at Ford, West Sussex - Redrow Homes Limited and Wates Developments*, Christchurch: Artemis.

Artemis, 2016. *Winter Bird Survey - Land at Ford, West Sussex - Redrow Homes Limited and Wates Developments*, Christchurch: Artemis.

Barton Wilmore, 2019. *Ford Airfield - Environmental Statement*, London: Barton Wilmore.

CIEEM, 2017. *Guidelines for Ecological Report Writing*, Winchester: Chartered Institute of Ecology and Environmental Management.

DCLG, 2006. *Planning for the Protection of European Sites, Consultation Paper*. s.l.:s.n.

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

Infrastructure Planning Commission, 2011. *Advice Note 10: Habitat Regulations Assessment Relevant to Nationally Significant Infrastructure Projects*, Bristol: The Planning Inspectorate.

Infrastructure Planning Commission, 2011. *Advice Note 10: Habitats Regulations Assessment Relevant to Nationally Significant Infrastructure Projects*, s.l.: s.n.

JNCC, 2001. *Arun Valley SPA*. [Online]
Available at: <http://jncc.defra.gov.uk/default.aspx?page=2079>

JNCC, 2013. *The UK Approach to Assessing Conservation Status for the 2013 EU Habitats Directive Article 17 Reporting*, Peterborough: JNCC.

JNCC, 2015. *Natura 2000 - Standard Data Form - UK9020281 Arun Valley*, Peterborough: JNCC.

ODPM, 2005. *Government Circular ODPM06/2005 Planning for Biodiversity and Geological Conservation: A Guide to Good Practice*, London: HM Government.

Riddington, R. et al., 1996. The impact of disturbance on the behaviour and energy budgets of Brent Geese *Branta b. bernicla*. *Bird Study*, 43(3), pp. 269-279.

RSK, 2018. *Geo-environmental and Geotechnical Site Assessment Report Ref 29228-R01 (00)*, s.l.: RSK.

Urban Edge Environmental Consulting, 2017. *Habitat Regulations Assessment for the Arun Local Plan: Supplementary Work - Stage 3 Report: Appropriate Assessment*, Brighton: Urban Edge Environmental Consulting.

Map 1 Site Location Plan



FORD AIRFIELD, WEST SUSSEX

**SHADOW HABITATS REGULATIONS
ASSESSMENT**

Map 1 - Site Location Plan

Client:	Wates Development / Redrow Homes
Date:	July 2019
Status:	Final

KEY

-  Site Boundary
-  Arun Valley SPA

Scale at A3: 1:70,000

0 0.5 1 2
Kilometres



ECOSA

Ecological Survey & Assessment
A Trinity Consultants Company

ECOSA Ltd., Ten Hogs House, Manor Farm Offices,
Flexford Road, North Baddesley, Hampshire SO52 9DF
Telephone: 02380 261085 Email: info@ecosa.co.uk
Web: www.ecosa.co.uk

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Map 2 Bewick's Swan Records (2009 onwards)

Map 3 Bewick's Swan – Suitable Habitat Adjacent to Site

