ecology solutions ltd

HANBURY (PM) LTD

PAGHAM SOUTH

Updated Information to enable a Habitats Regulations Assessment of the impacts on the Pagham Harbour Ramsar / Special Protection Area [pursuant to Regulation 63 of The Conservation of Habitats and Species Regulations 2017]

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ecology solutions for planners and developers

ARUN DISTRICT COUNCIL P/140/16/OUT

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1. INTRODUCTION

1.1. Background

1.1.1. Ecology Solutions was commissioned by Hanbury (PM) Ltd to undertake ecological assessment work pursuant to the production of documentation in support of a planning application to be submitted in respect of Pagham South, West Sussex.

1.1.2. As part of this instruction, Ecology Solutions were specifically instructed to assess implications of the Development Proposals on nearby designated sites of European/international importance, namely the Pagham Harbour Special Protection Area (SPA) / Ramsar site.

1.1.3. The findings of this assessment work were set out within a document titled 'Information to enable a Habitats Regulations Assessment' (IHRA) document (dated December 2016), which accompanied the planning application. Following submission of the planning application, third parties provided evidence which purported to show that the Application Site was used by Brent Geese on a regular basis. On this basis, additional assessment work and engagement with Natural England was undertaken. In the light of this new assessment work and through consultation with Natural England, a specific mitigation plan was produced, agreed with Natural England and submitted to Arun District Council. This IHRA document (June 2018) consolidates the assessment process and includes all additional relevant information.

1.1.4. In addition, since the production of the original IHRA, a recent judgment handed down by the Court of Justice of the European Union (CJEU) (12th April 2018) has implications for those applying the legal tests of Regulation 63 (formally Regulation 61) of the Conservation of Habitats and Species Regulations (2017). The CJEU judgment concerned a Preliminary Ruling in Case C-323/17. A request for a preliminary ruling was made to the CJEU concerning the interpretation of Article 6(3) of Council Directive 92/43/EEC (the Habitats Directive). The request was made in relation to proceedings brought by 'People Over Wind', and Mr Peter Sweetman against Coillte Teoranta. The ruling is as follows:

> *"Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site."*

1.1.5. The new ruling from the CJEU, departs from current domestic jurisprudence, where it was deemed acceptable to include consideration of any mitigation / avoidance measures, which formed

an integral part of the plan or project, in considering the first stage of assessment and screening for likely significant effects on a European site (or Ramsar site). In that case, where it could be concluded that no likely significant effect arises there was no recourse to move to Appropriate Assessment and address the Integrity test. This was the approach followed by Ecology Solutions within the sHRA.

1.1.6. In view of this ruling from the CJEU, in addressing the test at Regulation 63(1) of the Habitats Regulations, it is necessary to undertake the screening assessment in the absence of any consideration of avoidance or mitigation measures.

1.1.7. Ecology Solutions has been provided with a copy of an email from Arun District Council, dated 10th May 2018, which cites the CJEU ruling and advises the applicant of the process which is now being followed in relation to the determination of the planning application. It is stated:

> *"Whilst the approach originally adopted in screening the sites out was in accordance with the advice of Natural England this position has now changed. The LPA have sought legal and professional advice in relation to this matter and it has been advised that the sites can no longer be screened out by virtue of the mitigation measures identified and proposed. Therefore, the LPA have sought to instruct Urban Edge to undertake a screening assessment of each of the sites and as necessary undertake an appropriate assessment. However, this work will not be completed in time to allow for the presentation of the applications to members on the 12th June 2018."*

1.1.8. Notwithstanding the changes to the assessment process brought about by this judgment, in relation to the application site and the planning application to be determined, it is considered that the CJEU judgment has no effect upon the soundness of the mitigation strategy or the acceptability of the scheme in view of the tests of the Habitats Regulations as previously concluded by Ecology Solutions, Natural England and (it is understood) Arun district Council.

1.1.9. However, this package of updated information is now provided such that the competent authority (in this instance Arun District Council) has all the necessary information before it (in view of the CJEU ruling) in order to carry out its duties in considering the application in line with relevant planning policy and legislation, including specifically The Conservation of Habitats and Species Regulations 2017 (hereinafter referred to as the Habitats Regulations).

1.1.10. Development Proposals for the Application Site are for the provision of residential development (up to 400 units) along with public open space, retail and community provisions (including a primary school) associated landscape and biodiversity measures and access.

1.1.11. In finalising the Development Proposals, consultation has taken place with Arun District Council, Natural England and other key stakeholders. Relevant correspondence is cited or referred to wherever appropriate.

1.2. Purpose of this Report

1.2.1. This report specifically assesses the potential significant effects of the Development Proposals on the nearby designated sites of European/international importance, including Pagham Harbour SPA / Ramsar site.

1.2.2. Specific regard is had to the test under Regulation 63(1) of the Habitats Regulations. Regulation 63(1) is described and considered further in Section 2 of this document.

1.2.3. Assessment under Regulation 63 of the Habitats Regulations is required in this instance given the Application Site's proximity to the Pagham Harbours SPA/Ramsar site. The proximity of the Application Site to these and other European designated sites is described in detail at Section 3 of this report and is also shown on Plan ECO1.

1.2.4. As part of this assessment, professional judgement has been applied in some instances in order to interpret information. Ecology Solutions is a member of the Institute of Ecology and Environmental Management and the Institute of Environmental Management and Assessment and its' professional ecologists are qualified to make such judgements where appropriate.

1.2.5. This document assesses the likely significant effects of the Development Proposals associated with the Application Site as a whole, both alone and in combination with other plans / projects.

1.2.6. The purpose of this report is to provide the Competent Authority with the information required to consider the proposals in line with the test set out in Regulation 63 of the Habitats Regulations. It is the opinion of Ecology Solutions, in the light of all relevant available information, that the development proposals would not adversely affect the integrity of any European designated sites, and as such that consent may be safely granted for the development proposals. The information contained within this report provides all of the detail necessary to enable the Competent Authority to undertake their assessment.

1.3. Application Site Characteristics

1.3.1. The Application Site is located at the western settlement boundary of Pagham, to the immediate south of Summer Lane. The surrounding landscape is dominated by existing residential development to the north, south and east. To the west, south west and north west lies land under arable cultivation. To the immediate east lies Pagham Road.

1.3.2. The Application Site itself comprises arable land bounded by hedgerows and drainage ditches.

2. LEGISLATION, CASE LAW AND RELEVANT GUIDANCE

2.1.1. The proximity of the application site to designated sites of European importance means that the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (the 'Habitats Directive') is of relevance in this instance. Together with the EC Directive on Wild Birds (the 'Birds Directive'), this is transposed in UK legislation through the Habitats Regulations (2017).

2.1.2. The relevant Directives and UK legislation are discussed below.

<u>Habitats and Birds Directives</u>

2.1.3. Under the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, commonly referred to as the Habitats Directive (Council Directive 92/43/EEC), Member States are required to take special measures to maintain the distribution and abundance of certain priority habitats and species (listed in Annexes I and II of the Directive). In particular, each Member State is required to designate the most suitable sites as Special Areas of Conservation (SACs). All such SACs will form part of the Natura 2000 network under Article 3(1) of the Habitats Directive.

2.1.4. Article 2(3) sets out that member states have a duty, in exercising their obligations under the Habitats Directive to:

".. take account of economic, social and cultural requirements and local characteristics."

2.1.5. Under the EC Directive on Wild Birds (the Birds Directive) (Council Directive 2009/147/EEC, previously 79/409/EEC), Member States are also required to take special measures to conserve the habitats of certain rare species of birds (listed in Annex I of the Directive) and regularly occurring migratory birds. In particular, each Member State is required to classify the most suitable areas of such habitats as Special Protection Areas (SPAs). This is designed to protect wild birds, and to provide sufficient diversity of habitats for all species so as to maintain populations at an ecologically sound level. All Bird Directive SPAs will also be part of the Natura 2000 network under Article 3(1) of the Habitats Directive.

2.1.6. Thus, there is an obligation under the Habitats Directive and the Birds Directive for member states to designate sites before turning to measures for their protection.

2.1.7. The protection afforded to SACs and SPAs is delivered through Article 6 of the Habitats Directive. Article 6(2) requires member states to take appropriate steps to avoid the deterioration of natural habitats and disturbance of species for which the sites have been designated, in so far as the disturbance could be significant in relation to the objectives of the Directive. Article 6(3) and Article 6(4) require that a plan or project not directly connected with the management of the site, but

likely to have a significant effect upon it, either individually or in combination with other plans or projects, must be subject to an appropriate assessment of its implications on the site, in view of the site's conservation objectives.

2.1.8. Having undertaken an appropriate assessment, the competent authority may agree to a plan or project where it can be concluded that it will not adversely affect the integrity of the site. In light of a negative assessment on the implications for the integrity of the site, Article 6(4) provides that the plan or project may still proceed where it can be demonstrated that there are no alternatives and there are imperative reasons of over-riding public interest as to why it must proceed. In the event that a plan or project is to proceed on the basis of imperative reasons of over-riding public interest, by direction of Article 6(4), compensatory measures must be put in place to ensure that the overall coherence of the Natura 2000 network is protected.

<u>The Conservation of Habitats and Species Regulations 2017</u>

2.1.9. The Conservation of Habitats and Species Regulations 2017, commonly referred to as the Habitats Regulations, transpose the requirements of the Habitats Directive and Birds Directive into UK legislation. The Habitats Regulations aim to protect a network of sites in the UK that have rare or important habitats and species to safeguard biodiversity. The Habitats Regulations 2017 consolidate all the various amendments made to the Habitats Regulations 2010.

2.1.10. Under the Habitats Regulations, Competent Authorities have a duty to ensure that all the activities they regulate have no adverse effect on the integrity of any of the Natura 2000 sites. Regulation 63 of the Habitats Regulations requires that:

"63(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which:-

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of the site,

must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.

63(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies.

63(5) In the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project

only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

63(6) In considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given."

2.1.11. Regulation 63 of the Habitats Regulations therefore sets out a two stage process. The first test is to determine whether the plan / project is likely to have a significant effect on the European site; the second test (if applicable) is to determine whether the plan / project will affect the integrity of the European site (Appropriate Assessment).

2.1.12. Some key concepts of the Habitats Directive and Habitats Regulations have been clarified through case law. The most pertinent cases in relation to the development proposals are: the Waddenzee Judgment, the Sweetman Case and the 'People over Wind' case. These are discussed below.

<u>Waddenzee Judgement</u>

2.1.13. In the 'Waddenzee' case, the European Court of Justice (ECJ) considered the trigger for 'Appropriate Assessment'. It decided that an appropriate assessment is required for a plan or project where there is a probability or a risk that it will have a significant effect on the SPA. The Judgement states [at paragraph 3(a)] that:

"…any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects."

2.1.14. Hence the need for an appropriate assessment should be determined on a precautionary basis.

2.1.15. The Judgement gives clarity that the test of 'likely significant effect' should also be undertaken in view of the European site's conservation objectives. It is stated at paragraph 3(b) that:

"where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site."

2.1.16. Paragraph 4 of the Judgement emphasises the requirement for the appropriate assessment to rely on objective scientific information:

"…an appropriate assessment…implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities, taking account of the appropriate assessment of the implications…for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects."

Sweetman Case

2.1.17. Further guidance in relation to the consideration of impacts in the light of the Habitats Regulations is provided in the Sweetman case. The case as set out by the Advocate General considered in detail the test for likely significant effect in paragraphs 50 and 51*:*

"50. The test which that expert assessment must determine is whether the plan or project in question has 'an adverse effect on the integrity of the site', since that is the basis on which the competent national authorities must reach their decision. The threshold at this (the second) stage is noticeably higher than that laid down at the first stage. That is because the question (to use more simple terminology) is not 'should we bother to check' (the question at the first stage) but rather 'what will happen to the site if this plan or project goes ahead; and is that consistent with "maintaining or restoring the favourable conservation status" of the habitat or species concerned'…

51. It is plan, however, that the threshold laid down at this stage of Article 6(3) may not be set too high, since the assessment must be undertaken having rigorous regard to the precautionary principle. That principle applies where there is uncertainty as to the existence or extent of risks. The competent national authorities may grant authorisation to a plan or project only if they are convinced that it will not adversely affect the integrity of the site concerned. If doubt remains as to the absence of adverse effects, they must refuse authorisation."

2.1.18. The Court of Justice of the European Union (CJEU) agreed with the Advocate General's conclusions, and held*:*

"40. Authorisation for a plan or project, as referred to in Article 6(3) of the Habitats Directive, may therefore be given only on condition that the competent authorities – once all aspects of the plan or project have been identified which can, by themselves or in combination with other plans or projects, affect the conservation objectives of the site concerned, and in the light of the best scientific knowledge in the field – are certain that the plan or project will not have lasting adverse effects on the integrity of that site. That is so where no reasonable scientific doubt remains as to the absence of such effects."

2.1.19. Hence a plan or project may be authorised only if no reasonable scientific doubt remains as to the absence of effects. Reasonable scientific doubt will exist if the evidence is not sufficiently conclusive, or if there are gaps in the information.

<u>'People Over Wind' Case</u>

2.1.20. Updated guidance with regards to the consideration of the tests at Regulation 63 is provided through the judgment in relation to the 'People Over Wind' Case (case C-323/17), released by the CJEU on 12 July 2018. The CJEU ruled that when considering the test at Regulation 63(1):

"*Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*"

2.1.21. In accordance with this ruling, any avoidance or mitigation measures which form an integral part of a scheme cannot be considered at the first stage of the test (the 'Likely Significant Effect' stage), and can only be considered at the Appropriate Assessment stage.

2.1.22. This ruling supersedes domestic case law (notably Dilly Lane), which previously held that it is appropriate to consider any such measures at the 'likely significant effect' stage.

2.2. Guidance and other Relevant Documents

2.2.1. Guidance on the interpretation of key terms and concepts contained within the European and UK legislation of relevance to European designated sites is provided through several documents issued by the European Commission and national organisations such as the JNCC and Natural England. This guidance is discussed below.

<u>Managing Natura 2000 Sites (European Commission, 2000)</u>

2.2.2. The document entitled "Managing Natura 2000 Sites the provisions of article 6 of the Habitats Directive 92/43/CEE", published by the European Commission in 2000, provides guidelines to the Member States on the interpretation of certain key concepts used in Article 6 of the Habitats Directive.

2.2.3. This document states at Section 2.3.3 that conservation measures must correspond to the ecological requirements of the habitats and species present for which the site is designated and that these requirements "*involve all the ecological needs necessary to ensure their favourable conservation status*".

2.2.4. At section 3.5 the guidance states, in relation to deterioration and disturbance of habitats or species:

"Deterioration or disturbance is assessed against the conservation status of species and habitats concerned. At a site level, the maintenance of the favourable conservation status has to be evaluated against the initial conditions provided in the Natura 2000 standard data forms when the site was proposed for selection or designation, according to the contribution of the site to the ecological coherence of the network. This notion should be interpreted in a dynamic way according to the evolution of the conservation status of the habitat or the species."

2.2.5. Section 4.4.1 sets out that in determining what may constitute a likely 'significant' effect one should take into account the conservation objectives for the site and other relevant baseline information. In the second paragraph of this section of the document it is stated:

"In this regard, the conservation objectives of a site as well as prior or baseline information about it can be very important in more precisely identifying conservation sensitivities."

2.2.6. Section 4.5.3 of the document sets out the duty of member states to provide certain specific information in support of the inclusion of a site within the Natura 2000 network. This information is to be provided in a format specified by the European Commission (the Natura 2000 Standard Data Form).

2.2.7. A link is drawn between the Standard Data Form and the formation of the sites conservation objectives within the text box at the end of section 4.5.3 of the guidance where it is stated:

"The information provided according to the standard data form established by the Commission forms the basis for a Member State's establishment of the site's conservation objectives."

2.2.8. With regard to an assessment of the effects of a plan / project on the integrity of a site, the 'integrity of the site' is defined at Section 4.6.3 as:

"… the coherence of the site's ecological structure and function, across the whole area, or the habitats, complex of habitats and / or populations of species for which the site is or will be classified."

2.2.9. The guidance is clear, within the text box at the foot of page 39, that an assessment as to the implications of the plan / project on the integrity of the site should be limited to an assessment against the sites conservation objectives:

"The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives."

2.2.10. Section 5 of the document deals with Article 6(4) of the Habitats Directive. Note that this section has been expanded upon, and replaced by further guidance issued by the European Commission entitled "Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC" (2007). This document is dealt with below.

<u>Assessment of Plans and Projects Significantly Affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2001)</u>

2.2.11. This document, published by the European Commission in 2001, gives guidance on carrying out and reviewing those assessments required under Article 6(3) and (4) of the Habitats Directive. It is provided as supplementary guidance and does not over-ride or replace any of that set out within Managing Natura 2000 (European Commission 2000) which as stated at page 6 of the document, "*is the starting point for the interpretation of the key terms and phrases contained in the Habitats Directive*". The guidance provided is not mandatory and it is clearly set out that its use is "*optional and flexible*" and that it is for "*Member States to determine the procedural requirements deriving from the directive*".

2.2.12. The guidance sets out the key stages in following the tests contained within the Habitats Directive. Pertinent to this application, stages one and two are relevant. Stage one is the screening stage assessing the likelihood of a plan / project resulting in a significant effect upon the European site. The second comprises the appropriate assessment.

2.2.13. Section 3.2.4 is concerned with Appropriate Assessment and specifically, the assessment against the conservation objectives of the European Site. Box 9 provides a list of five example conservation objectives for differing broad habitat types. One such example, that for a coastal site, taken from Box 9 is provided below:

"to maintain the status of the European features of this coastal site in favourable condition, allowing for natural change. Features include coastal shingle vegetation and lagoons (within a candidate special area of conservation (SAC), which is also an SPA)."

<u>Internal Guidance to decisions on 'Site Integrity': A framework for provision of advice to competent authorities (English Nature, 2004)</u>

2.2.14. Natural England (formerly English Nature) has produced an internal guidance document on the provision of advice to competent authorities regarding the concept of "site integrity" in undertaking an appropriate assessment.

2.2.15. This guidance sets out a definition for integrity. It states that integrity is considered at the site level and gives the following definition, as taken from Planning Policy Guidance 9 (PPG9):

"The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or levels of populations of the species for which it was classified".

2.2.16. Integrity is further defined within section 3.0 where it is stated that:

"In a dynamic context 'integrity' can be considered as a site having a sense of resilience and ability to evolve in ways that are favourable to conservation."

2.2.17. The need to maintain, or restore the site to, favourable conservation status is dealt with in the final paragraph of section 3.0. Natural England quotes guidance issued jointly by the Environment Agency, English Nature and Countryside Council for Wales.

2.2.18. The guidance provides a checklist within section 4.1, for assessing the likelihood of an adverse effect on integrity occurring as a result of the proposed plan / project. It is stated that if the answer to all of the questions posed within the checklist is "yes" then it is reasonable to conclude that there will be no adverse effect upon integrity. In the event that one or more of the answers is no, then the guidance suggests that a series of further site specific factors, listed at 4.2 – 4.7 of the guidance must be considered in detail.

<u>Common Standards Monitoring (JNCC, 2004)</u>

2.2.19. Common Standards Monitoring is a means by which condition objectives for habitats, species, or other features of designated sites (e.g. Sites of Special Scientific Interest – SSSIs, and SPAs) are set based on key attributes of the features.

2.2.20. The Joint Nature Conservation Committee (JNCC) and the country Conservation Agencies (e.g. Natural England) developed guidance on the setting and assessing of condition objectives, as required under the Birds and Habitats Directives and set out a framework for this in 1999. This framework is provided in the form of Common Standards Monitoring (CSM) guidance which comprises a suite of documents including an "Introduction to the Guidance Manual on Common Standards Monitoring" and several species / habitat specific documents, including those for lowland heathland, birds, reptiles and invertebrates. The Introduction to the Guidance Manual covers various relevant concepts and terms. It also provides a background to the setting of conservation objectives and sets out the desired approach to setting targets, monitoring, management and reporting on conservation measures in designated sites.

2.2.21. The Guidance Manual and CSM guidance for individual site attributes (e.g. its bird interest) set out specific criteria regarding the identification

of interest features, targets and methods of assessment. There is in-built flexibility and allowances for 'judgements to be made' when assessing, for example, favourable condition.

2.2.22. It is understood that Natural England applies the Common Standards Monitoring approach to European designated sites through an assessment of the SSSI unit condition. This is undertaken on a cycle of approximately six years. The assessment does not relate to the Conservation Objectives of the European site, but provides a tool for tailoring future management of the SSSI such that favourable condition of the interest features can be maintained or restored as appropriate.

Guidance document on Article 6(4) of the 'Habitats Directive' (European Commission, 2007)

2.2.23. This document, published by the European Commission in 2007, is intended to provide clarification on key terms / concepts as referred to within "Managing Natura 2000 Sites" and replaces the section on Article 6(4) within that earlier document.

2.2.24. The Guidance document covers in particular the concepts of Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensation Measures, Overall coherence and the Opinion of the Commission.

2.2.25. With regard to ensuring the quality of an appropriate assessment, and to define exactly what needs to be compensated, it is stated at Section 1.3 that:

"Assessment procedures of plans or projects likely to affect Natura 2000 sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity."

2.2.26. The need to use information contained within the Natura Standard Data Form, in tandem with the sites conservation objectives when undertaking an appropriate assessment is specifically referred to (under the second hyphenated point at Section 1.3 on page 5).

2.2.27. Section 1.3.2 gives guidance on the application of Article 6(4) in respect of reasons of overriding public importance and Section 1.4.1 gives guidance on the application of Article 6(4) in respect of compensatory measures.

Natura Standard Data Forms

2.2.28. A standard reporting format has been developed for Natura 2000 sites to ensure that the relevant site selection information is reported and stored in a consistent manner which can be easily made available.

2.2.29. A standard reporting form for SPAs and SACs was developed by the European Commission and published in 1996. The form is used for all sites designated, or proposed to be designated as SPAs and SACs under the relevant Directives, with the information to be stored on a central database.

2.2.30. Article 4 of the Habitats Directive provides the legal basis for providing the data. Article 4 states that information shall include a map of the site, its name, location, extent and the data resulting from application of the criteria specified in Annex III and that this shall be provided in a format established by the Commission. Under Article 4 (paragraph 3) of the Birds Directive, Member States are required to provide the Commission with all relevant information to enable it to take any appropriate steps in order to protect relevant species in areas where the Directive applies.

2.2.31. Whilst it is the relevant country agency (i.e. Natural England) that is responsible for designating a site, it is the JNCC who are responsible for collating the lists of European and international designated sites, together with relevant supporting information. The Nature 2000 Data Forms for SPAs and SACs are therefore made available by the JNCC.

2.2.32. Within the explanatory notes for Natura Standard Data Forms (European Commission 1996) the following "main objectives" of the Natura data form / database are given:

1. *"to provide the necessary information to enable the Commission, in partnership with the Member States, to co-ordinate measures to create a coherent NATURA 2000 network and to evaluate its effectiveness for the conservation of Annex I habitats and for the habitats of species listed in Annex II of Council Directive 92/43/EEC as well as the habitats of Annex I bird species and other migratory bird species covered by Council Directive 79/409/EEC."*

2. *"to provide information which will assist the Commission in other decision making capacities to ensure that the NATURA 2000 network is fully considered in other policy areas and sectors of the Commission's activities in particular regional, agricultural, energy, transport and tourism policies."*

3. *"to assist the Commission and the relevant committees in choosing actions for funding under LIFE and other financial instruments where data relevant to the conservation of sites, such as ownership and management practice, are likely to facilitate the decision making process."*

4. *"to provide a useful forum for the exchange and sharing of information on habitats and species of Community interest to the benefit of all Member States."*

Conservation Objectives

2.2.33. The formal European Site Conservation Objectives for SPAs and SACs are published by Natural England. The Conservation Objectives for the European designated sites of relevance to this assessment are included at Appendix 1, and are summarised in Section 3 below.

3. SITE LOCATIONS

3.1. The Pagham Harbour SPA/Ramsar site is located to the south and west of the Application Site, approximately 0.47km away at its closest point. Other European / international designated sites are located at considerably greater distances. For completeness, the Chichester and Langstone Harbours SPA / Ramsar site and the Solent Maritime Special Area of Conservation (SAC) are located approximately 6.5km to the west of the Application Site at their closest point. The Solent to Dorset Coast potential SPA (pSPA) boundary overlaps that of Pagham Harbour, with the boundary drawn to mean high water. There are no other such sites within 10km of the Application Site.

3.2. Consideration has been given to potential significant effects occurring on the Chichester and Langstone Harbours SPA / Ramsar site, the Solent Maritime SAC and the Solent to Dorset Coast pSPA. In relation to the Chichester and Langstone Harbours SPA / Ramsar site and the Solent Maritime SAC, it is considered that given the distances involved, the Development Proposals would not be likely to give rise to a significant effect on these sites, when the project is considered either alone or in combination with other plans or projects. This conclusion is also reflected within the "Interim Policy Statement on Development and Disturbance of Birds in Special Protection Areas and identified Compensatory Habitats" document (April 2014) published by Chichester District Council. It is stated that:

> "Through the Solent Disturbance and Mitigation Project (SDMP), Councils across the Solent have identified a "zone of influence" surrounding the Chichester & Langstone Harbours SPA/SAC site that extends to 5.6km from the Special Area of Conservation(SAC) boundary. Accordingly, the Council will approach consideration of planning applications within the zone as set out below."

3.3. In this instance, the Application Site falls well outside of the identified zone of influence. No further consideration is therefore required in relation to potential effects on the Chichester and Langstone Harbours SPA / Ramsar site and the Solent Maritime SAC.

3.4. In relation to the Solent to Dorset Coast pSPA, which would be classified in order to protect foraging species of Tern *Sterna* sp., given the distances involved and the nature of the Development Proposals no disturbance effects on Tern species using this pSPA would occur. On this basis no further consideration is therefore required.

3.5. Pagham Harbour SPA / Ramsar site

3.5.1. Pagham Harbour SPA / Ramsar Site covers an area of 636.68ha, the SPA boundary being consistent with that of the Ramsar Site. The relevant Natura Standard Data Form and Ramsar Information Sheet are included at Appendix 2.

3.5.2. Pagham Harbour SPA / Ramsar Site comprises one underpinning SSSI, namely Pagham Harbour SSSI. The citation for this SSSI is included at Appendix 2.

3.6. Relationship between the SPA / Ramsar sites and the Application Site

3.6.1. The relationship between the relevant SPA / Ramsar Site is shown on Plan ECO1.

4. CONSERVATION STATUS OF THE PAGHAM HARBOUR SPA / RAMSAR SITE

4.1. SPA Qualifying Features

4.1.1. Pagham Harbour SPA (and Ramsar site) comprises an estuarine basin with an extensive central area of saltmarsh and intertidal mud-flats, surrounded by lagoons, shingle, open water, reed swamp and wet grassland. The mud-flats are rich in invertebrates and algae, which provide feeding areas for birds. Areas of lower saltmarsh are dominated by Common Cord-grass *Spartina anglica*, with patches of Glasswort *Salicornia* spp.

4.1.2. From a review of relevant information published by the JNCC and Natural England it would appear that the 2016 SPA Review has resulted in a change in the qualifying interest features for this SPA. These changes have not however been reflected in the Natura 2000 Standard Data Form (published in December 2015) or the formal Conservation Objectives (published in June 2014).

4.1.3. According to the Natura 2000 Standard Data Form Pagham Harbour SPA qualifies under Article 4.1 of the Birds Directive on account of it supporting breeding populations of Little Tern *Sterna albifrons*, Common Tern *Sterna hirundo*, together with over-wintering Ruff *Philomachus pugnax*. The site further qualifies under Article 4.2 of the Birds Directive on account of it supporting important populations of over-wintering Dark-bellied Brent Goose *Branta bernicla*.

4.1.4. The Natura 2000 Standard Data Form for the SPA is included in Appendix 2.

4.1.5. The formal Conservation Objectives, a copy of which are included at Appendix 1, also cite the same qualifying interest features.

4.1.6. Information published on the JNCC website gives the following information. Pagham Harbour SPA qualifies under Article 4.1 of the Birds Directive on account of it supporting breeding populations of Little Tern *Sterna albifrons*, together with over-wintering Ruff *Philomachus pugnax*. The site further qualifies under Article 4.2 of the Birds Directive on account of it supporting important populations of over-wintering Pintail *Anas acuta*.

4.1.7. From a review of the individual species accounts associated with the 2016 SPA Review, for Dark-bellied Brent Goose Pagham Harbour is not cited as a SPA for which the species is classified. This is also the case for Common Tern. For Pintail, Pagham Harbour is listed as a site for which this species is considered important (in the context of the Natura 2000 network) but it is stated that classification of the species has not yet been confirmed.

4.1.8. It can be concluded that the 2016 SPA Review has identified Pagham Harbour as a SPA for which Pintail should / will be classified for Pintail and that this species should be treated as a qualifying interest feature

of the SPA. Conversely it appears that breeding Common Tern and over wintering Dark-bellied Brent Goose are no longer considered to be qualifying interest features of the SPA.

4.1.9. However, in the light of the fact that the formal Conservation Objectives for the site have not been updated and since Dark-bellied Brent Goose remain a qualifying interest feature of the Ramsar site (see below) this species has been treated as a feature which requires consideration in respect of the application of the tests of the Habitats Regulations in this instance. For completeness, to ensure a fully robust assessment, consideration is also given to potential significant effects on breeding Common Tern and Pintail, in addition to those species for which no apparent changes in qualifying status at the site have occurred.

4.2. Ramsar site Qualifying Features

4.2.1. Pagham Harbour Ramsar site qualifies under Ramsar criterion 6 on account of it supporting important populations of wintering Dark-bellied Brent Goose. Black-tailed godwit *Limosa limosa islandica*, are cited on the Ramsar Information Sheet as being identified subsequent to designation for possible future consideration under Criterion 6.

4.2.2. The Ramsar Information Sheet for the Ramsar site is included in Appendix 2.

4.3. Condition of SPA Ramsar Habitats

4.3.1. Habitat information for each of the management units of the Pagham Harbour SSSI is given within the ‘condition assessment comment’ included within the documents at Appendix 3. There are currently 23 management units, of which the majority are documented as being in “favourable condition’, with the condition of six units being documented as either “unfavourable recovering” or ‘unfavourable no change’.

4.3.2. Favourable condition for the SSSI is defined as being adequately conserved and meeting its 'conservation objectives'. Nonetheless, it is stated that there is scope for the enhancement of these SSSIs (SPA / SAC / Ramsar site).

4.3.3. The citation for the Pagham harbour SSSI is included at Appendix 2.

4.4. Conservation Objectives

4.4.1. The Habitats Regulations require an appropriate assessment to be undertaken “in view of the site’s nature conservation objectives”. Further, in light of relevant case law and guidance (as discussed above), it is right and proper that a screening assessment for likely significant effects is also undertaken in view of the formal Conservation Objectives for the site. Conservation objectives are a statement of the measures required to maintain at, or restore to, favourable conservation status the natural habitats and / or the populations of

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species of wild fauna and flora for which the site has been selected. The conservation status of a species is defined as favourable when the population, range and natural habitats of the species are stable or increasing. Similarly the conservation status of a habitat is favourable when the range, structure and function, and typical species thereof, are stable or increasing.

4.4.2. The Conservation Objectives for the Pagham Harbour SPA / Ramsar site are included at Appendix 1.

4.5. Pagham Harbour SSSI qualifying features

4.5.1. Pagham Harbour SSSI is designated on account of ecological and geological interest features. In relation to ecological matters, the site contains an extensive area of salt-marsh with tidal mudflats, shingle, open water, reed swamp and wet grassland. The site is of national importance for wintering wildfowl and waders and also for breeding birds within the harbour and the surrounding pasture. In addition, the site supports nationally important communities of plants and invertebrates.

4.5.2. Whilst the main purpose of this document is to address potential significant effects on the Pagham Harbour SPA / Ramsar site, given the underpinning nature of the SSSI designation and the consistency of site boundaries consideration is also give to effects on the SSSI where relevant.

5. ASSESSMENT OF THE IMPLICATIONS OF THE DEVELOPMENT PROPOSALS FOR THE SPA / RAMSAR SITE CONSERVATION OBJECTIVES

5.1. Section 2 of this document sets out the legislation, guidance and case law of relevance to an assessment of the implications of a plan / project on a European site. Having regard to this legislation and supporting guidance it is clear that the assessment is a two stage process, the first being the 'likely significant effect' stage, the second being the 'integrity test'.

5.2. It is clear that the Conservation Objectives of the European site are the most important consideration in determining whether the plan / project will have an adverse effect on the site, including any effects on its integrity. Indeed, some guidance indicates that it is only the Conservation Objectives against which the plan / project should be tested in line with the Habitats Directive / Regulations. However, other European guidance implies that additional information is relevant.

5.3. It is evident that there is a clear hierarchical approach to assessing effects on European sites in line with the Habitats Directive / Regulations. The primary test is that against the Conservation Objectives (now updated to include specific reference to qualifying interest features) with other considerations following these. Such other considerations would include:

- Other features of interest associated with the site; and
- Other relevant baseline information for the site.

5.4. In line with the above, whilst the qualifying interest features of the sites and other baseline information have informed this assessment, the greatest weight has been placed upon the formal Conservation Objectives for the European designated sites, as set out by Natural England.

5.5. This section includes a description of the potentially significant effects arising from the development proposals at the application site on the European designated sites. The potential effects are assessed within this section in order to address the test under Regulation 63(1) in the first instance.

5.6. In undertaking this assessment, consideration has been given to the best available scientific knowledge. Further consideration under the Habitats Regulations (i.e. Appropriate Assessment, if required) can therefore be undertaken, consistent with the *Waddenzee* Judgement, which requires the use of the best scientific knowledge to inform a decision where no reasonable scientific doubt remains as to the presence and / or absence of effects that would adversely affect the integrity of the designated site (see Section 2 above).

5.7. Furthermore, consideration is given to the recent 'People Over Wind' case, which confirmed the view of the ECJ that any avoidance or mitigation measures that form an integral part of the project can only be taken into consideration at the Appropriate Assessment stage. This supersedes the domestic Dilly Lane judgement in the High Court (see Section 2 above).

5.8. Potential Impacts on the Pagham Harbour SPA / Ramsar site in the absence of Mitigation

5.8.1. Given that the reasons for classification as an SPA and designation as a Ramsar Site are essentially similar, it is reasonable to consider the potential for impacts upon the two designations as one rather than undertake a separate assessment for each.

5.8.2. As discussed previously, Natural England were consulted on the emerging Development Proposals at an early stage. The advice provided by Natural England has been use to guide this assessment. A copy of the relevant correspondence is included at Appendix 4. With reference to the letter at Appendix 4, Natural England confirmed that it has no 'in principle' concerns with development of up to 400 residential units at the Application Site and that a suitable mitigation package (the broad detail of which was discussed and agreed) can easily be secured to allow the conclusion of no likely significant effect on the Pagham Harbour SPA/Ramsar site.

5.8.3. It is acknowledged that the position of Natural England was expressed in light of the Dilly Lane decision (i.e. where avoidance and mitigation measures can be considered at the Likely Significant Effect stage). Whilst the recent ECJ decision has clarified that avoidance and mitigation measures can only be considered at the Appropriate Assessment stage, it is axiomatic that the position of Natural England would be that subject to inclusion of these measures, the proposals would not result in an adverse effect on the integrity of the European site. This is considered in further detail below.

5.8.4. Given the separation of the Application Site from the SPA/Ramsar site it is considered that there would be no significant effects from lighting, air quality or noise impacts during the construction or operational phases of the Development Proposals.

5.8.5. Potential pathways for significant effects are considered to be limited to the following:

- Disturbance effects (dog walking, walking) through increased recreational pressure at the SPA;
- Hydrological impacts;
- Loss of functionally linked (supporting) habitat for qualifying bird interest features of the SPA / Ramsar site, or disturbance to such species using such habitat.

5.8.6. Natural England concurs with this view (see Appendix 4). These identified pathways for effects are discussed in detail below.

<u>Disturbance effects (on qualifying bird species)</u>

5.8.7. Given the distances involved, it is considered that there is potential for new residents associated with the proposed development to access areas of the SPA / Ramsar site (e.g. for recreational purposes),

thereby increasing visitor pressure on the site and potentially disturbing birds, including those listed as designating features of the site.

5.8.8. The SPA / Ramsar site is designated on account of its breeding and over-wintering bird populations (see Section 4) and as such, it is considered that effects are associated with both the spring / summer and winter periods. During winter, birds are susceptible to adverse effects through disturbance due to food sources being scarcer and efficient use of energy being of heightened importance to survival. During the breeding season, disturbance can result in adult birds being flushed from nests, leaving eggs or young exposed to the elements and predation. Prolonged or repeated disturbance can cause the adults to abandon a nest site.

Assessing visitor impacts

5.8.9. The proposals are for the construction of up to 400 residential units.

5.8.10. The average number of residents per household within the Arun District[1] is 2.2. On this basis, the new development could give rise to a population of 880 additional people. It is reasonable to assume that the housing mix associated with any future Reserved Matters application would include a number of three and four bedroom properties in addition to those of smaller size. It has been assumed that the Development proposals could give rise to around 1000 new residents.

5.8.11. Some of these new residents would be expected to own pets, including dogs and access to nearby recreational areas for dog walking will be required. Whilst noting the presence of public rights of way close to the Application Site, in the absence of suitable, additional open space provision in the immediate vicinity of the new dwellings, it is possible that new residents would access the SPA / Ramsar site on a more regular basis than would otherwise be the case.

5.8.12. The Development Proposals provide for a significant area of open space for informal recreation, including dog walking and this is discussed further below in respect of mitigation measures.

5.8.13. On the basis of emerging planning policy and guidance in respect of the effects of new residential developments in the district, a package of mitigation and avoidance measures aimed at mitigating / avoiding recreational impacts on the SPA / Ramsar site has been put forward. This is discussed further below in Section 6.

[1] 2011 Census, Office for National Statistics

Hydrological impacts

Vulnerability

5.8.14. Estuarine habitats are susceptible to toxic contamination, sedimentation and erosion, with the later two affecting the structure of the habitats present. Toxic contamination has the potential to kill off benthic, and other invertebrates as well as plant species. Via the uptake of toxins by these groups, knock on effects on organisms further up the food chain (e.g. birds) are also possible.

Predicted Impacts

5.8.15. There is no watercourse (e.g. river, stream) within or adjacent to the Application Site, which would offer a direct hydrological link with the SPA/Ramsar site. The Pagham Rife is located approximately 0.8km to the west of the Application Site at its closest point. Field drains / ditches in the local area may offer potential hydrological connectivity to the SPA / Ramsar site, although from studying the relevant Ordnance Survey map, there appears to be no direct link, with several gaps in the network.

5.8.16. Specific consideration has been given to the proposed surface water and foul water drainage strategies associated with the proposals.

5.8.17. Noting the lack of direct hydrological connectivity between the Application Site and wider ditch / drainage network (discharging to the SPA / Ramsar site), it is considered that activities during the construction phase would be highly unlikely to result in adverse effects on the SPA / Ramsar site (e.g. through contaminated surface water run-off). In any event, mitigation measures will be in place to deal with any contamination issues during the construction phase. Such measures would include the provision of spill kits to machine operators, use of interceptors/bunds where appropriate and agreed safe storage protocols for any chemicals on site.

5.8.18. During the operational phase of development it is considered that potential effects would be limited to the following:

- Contamination of the local hydrological system (surface water run-off);
- A change in water discharge rates into Pagham Harbour as a result of the drainage (storm water) strategy;
- A change in water discharge rates into Pagham Harbour as a result of the foul water treatment strategy.

5.8.19. Consideration has been given to potential toxic contamination of the hydrological system during the operational phase. Given the distances involved (as set out above in relation to the construction phase), and the mitigation incorporated into the scheme in relation to the surface water drainage strategy (see below), it is considered that there would not be any adverse effects on the integrity on the SPA / Ramsar site.

5.8.20. With regard to potential changes in water discharge rates into Pagham Harbour, both the surface water drainage (storm water) and foul water strategies are key.

5.8.21. An inappropriately designed surface water drainage strategy could, either directly or indirectly alter ground water run-off or infiltration rates, with the result that a greater 'load' is placed on the local drainage network.

5.8.22. The surface water drainage strategy will utilise a SuDS based system, with appropriately designed attenuation features. There will be no direct discharge of surface water into the local drainage network and natural infiltration levels would not be above the current 'green field' run off rate. The fine detail of the drainage strategy will be agreed with the Environment Agency, providing a further level of comfort to the decision taker on this matter.

5.8.23. It is considered that there would be no potential significant effect on the SPA / Ramsar site or the SSSI as a result of the surface water drainage strategy.

5.8.24. Regarding the treatment of foul and storm water, it is proposed that this will be discharged directly to Pagham Waste Water Treatment Works (WWTW). Waste water will either be pumped, or a gravity system may be employed depending on the results of further work to be undertaken at the detailed design stage. Southern Water have confirmed that the Pagham WWTW has sufficient capacity and that ('clean' water) discharge rates from the WWTW would not be adversely affected.

5.8.25. On the basis of the above, it is considered that the Development Proposals would not have a significant effect on the SPA / Ramsar site or SSSI as a result of hydrological impacts and no additional specific mitigation measures are considered necessary.

Supporting Habitat

5.8.26. It is necessary to give specific consideration to the extent to which land associated with the Development Proposals could be classed as 'supporting habitat' to the SPA / Ramsar site. Supporting habitat is that which, whilst not designated, plays an important role in the maintenance of populations of qualifying bird interest features at the SPA / Ramsar site. This would include, for example, land which provides an important foraging resource for such species. In some instances, adverse impacts on supporting habitat can lead to a conclusion that the plan / project is likely to have a significant effect on the European designated site.

5.8.27. The Application Site, has been subject to specific survey and assessment work in order to determine whether qualifying bird interest

features of the SPA / Ramsar site would be in any way dependent upon the habitat features present.

5.8.28. Of the listed qualifying bird interest features for the SPA / Ramsar site, the only species which requires more detailed consideration is Dark-bellied Brent Goose. This species is known to utilise arable land in the local area for foraging and loafing. Other qualifying bird interest features (Tern sps, Ruff and Pintail) would not be reliant upon the land in question given the habitats present and the specific requirements of these species.

5.8.29. With specific regard to the wintering habitats of Brent Geese, this species is most likely to forage on short dense swards of dry, improved grasslands with a high abundance of perennial Rye-grass *Lolium perenne* and an area of between 5 and 6 ha, located up to 1.5 km inland and 4-5 km along the coast from coastal roosting sites (Vickery and Gill 1999). In addition, this species has increasingly taken to grazing on cultivated grasslands and winter cereal fields near the coast (Scott and Rose 1996).

5.8.30. Winter waterfowl surveys, undertaken by Aluco Ecology Ltd during the period November 2014 – March 2015 recorded no use of the Application Site by Dark-bellied Brent Goose, or indeed any waterfowl. Relevant survey information is presented at Appendix 5. During survey visits made by Ecology Solutions in winter 2017/18 (see Appendix 6), it was noted that the relevant fields are not planted with a winter cereal crop and are therefore unsuitable for use by Brent Geese. To confirm, again no use of the land by Brent Geese has been recorded.

5.8.31. Noting the fact that Dark-bellied Brent Geese will forage on different fields, year to year, depending on the crops present, and since the Application Site comprises arable land, further analysis has been undertaken into the potential importance of the Application Site and surrounding land for this species.

5.8.32. Whilst not corroborated by the specific wintering bird surveys undertaken, Ecology Solutions was alerted (by local residents who attended a public consultation event held in respect of the proposals), to the fact that Geese regularly utilise the Application Site. Whilst such information has been treated with a degree of caution it has been assumed that Dark-bellied Brent Geese may utilise the Application Site from time to time. In order to further inform this assessment, pre-existing information was additionally sought on the recorded abundance of this species in the locality of the Application Site.

5.8.33. It is understood from conversations with Natural England in relation to a planning application submitted (and consented) for land immediately north of the Application Site in 2015, that the specific area in question (the Application Site and surrounding arable land, north east of the SPA) was considered of ‘low’ importance for the species, based on survey work undertaken several years ago. Further information on Dark-bellied Brent Goose numbers for the Application Site and

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surrounding area was sought from the Royal Society for the Protection of Birds (RSPB), the British Trust for Ornithology Wetland Bird Survey (WeBS) and Sussex Biological Records Centre.

5.8.34. Pre-existing survey information obtained through this data search is presented at Appendix 7. This information shows that the Application Site and land in the immediate vicinity is of limited importance to Dark-bellied Brent Geese in the context of the habitats in closest proximity to the SPA / Ramsar site.

5.8.35. As can be seen from the SxBRC information presented at Appendix 8, only historic records (from 1986) exist for this species within quadrat G, within which the majority of the Application Site is located. The data also shows historic use of habitat within Quadrat E (into which the development footprint extends), with such use almost certainly focussed on the large area of arable habitat in the northeast. In relation to Quadrat D, into which the Application Site extends, records show use by circa 2,000 individuals for several years (1990, 1994, 2000, 2007 and 2011), with low level use (100 individuals) in 2012. For two of these years, 1990 and 1994 specific locations are provided and these are shown on the plan at Appendix 7 as “D1” and “D2”, in the far north west of this quadrat, at a considerable distance from the Pagham settlement boundary and close to the SPA / Ramsar site. It is likely that the non-specific location records provided for the D 1km^2 quadrat (2000, 2007, 2011 and 2012) are for birds recorded in the north west (i.e. similar areas to the location specific records from 1990 and 1994).

5.8.36. WeBS data provided by the BTO shows a maximum count of 3,001 Dark-bellied Brent Geese for the relevant recording sector, from 2010. During subsequent years this number has fallen, with a maximum counts of 1,620 in 2011, 2,500 in 2012, 2,280 in 2013 and just 730 in 2014.

5.8.37. More recently, additional information has been made available by the Sussex Ornithological Society. Whilst the data presented cannot be considered robust for assessment purposes (in part due to the methodologies employed), it does indicate use of the Application Site by Brent Geese. The relevant information is presented at Appendix 8.

5.8.38. Looking at the broad data set obtained, it is clear that the farmland in the local area is of some value to this species. However, the information strongly suggests that activity is more heavily focussed on land in and around the SPA / Ramsar site itself, and located at a considerable distance from the settlement boundary of Pagham.

5.8.39. Survey work, does not demonstrate with any certainty that the Application Site is of importance to the species and therefore that it can be considered functionally linked to the SPA / Ramsar site. However, it can be concluded that use of the Application Site by Dark-bellied Brent Geese on at least an occasional basis cannot be ruled out. In determining whether loss of habitat within the Application Site would give rise to a likely significant effect however, important

considerations include; the context of the site's location in the wider landscape; the availability of other suitable habitat and the population trends for the species in the local area. Of course it is also important to bear in mind that whilst supporting habitat has a role in the maintenance of the population being considered, it in itself has not been deemed of sufficient importance to be classified as such and brought within the Natura 2000 network (e.g. through an extension of the existing SPA boundary).

5.8.40. The Application Site includes arable habitat, which is common place within the local area. It is clear from aerial photography that a large swathe of arable and grassland habitats extend north from the SPA/Ramsar site towards South Mundham, between Pagham and Sidlesham. Noting the lack of evidence for any significant use of the Application Site by the species and also the fact that for planning policy compliance reasons additional land to the west and north west of the Application Site would not be likely to be subject to development, the losses proposed cannot be seen as significant.

5.8.41. The Application Site is located adjacent to the existing settlement boundary. In these terms, the proposals will not result in fragmentation or compartmentalisation of habitat which could be used by the species. Such matters are relevant given that the species tends to avoid small enclosed fields.

5.8.42. It is also of note that evidence gives rise to the conclusion that the population of wintering Dark-bellied Brent Geese has fallen considerably over recent years. The precise reasons for this decline is not known, but it is likely that poor fledging success (e.g. through increased predation) at the breeding grounds in the Arctic Circle is a contributing factor. It is also possible that, as with several migratory duck species, 'short stopping' is occurring. This is where the increasingly less severe winters mean that previously unavailable habitats along the migration route, closer to the breeding grounds, remain suitable for foraging for longer. In some instances, this can mean that populations of birds never reach those areas which historically formed part of their range, simply because they no longer need to.

5.8.43. It is considered that sufficient evidence does not exist to show that losses of arable habitat within the Application Site would be considered significant in Habitats Regulations terms. However, on a precautionary basis mitigation is nonetheless proposed. The mitigation measures, which are set out in the following section, are targeted at preventing disturbance impacts on Dark-bellied Brent Geese which may continue to use habitats to the west of the Application Site. In addition, a bespoke package of measures is proposed which secures foraging resources for Brent Geese long term. These measures are discussed in the following section.

6. MITIGATION / AVOIDANCE MEASURES AND THE IN COMBINATION TEST

6.1. A package of mitigation/avoidance measures is proposed, focussed upon alleviating visitor pressure on the SPA / Ramsar site and addressing perceived impacts on foraging and disturbance impacts on Brent Geese. These measures have been discussed and agreed with Natural England.

6.2. In the light of the CJEU judgment (12th April 2018), the following detailed information regarding the proposed avoidance and mitigation measures is provided such that in undertaking an Appropriate Assessment, the Competent Authority has all necessary available information to reach firm conclusions in respect of the Integrity test associated with Regulation 63 of the Habitats Regulations.

6.3. The mitigation / avoidance strategy comprises four key elements; firstly, on site provision for recreation activities including dog walking; secondly, a package of measures aimed at alleviating existing and future pressures from visitor numbers at the SPA / Ramsar site itself. Thirdly, the western boundary of the Application Site will be strengthened through extensive new planting and stock fencing in order to buffer the retained farmland to the west (used by Dark-bellied Brent Geese) from built form and movement of vehicles and people / dogs within the development. Fourthly, a bespoke package of measures are proposed which deliver long term mitigation / enhancements for Brent Geese. These measures are discussed below.

<u>Open space provision</u>

6.4. Informal open space is to be provided throughout the Application Site, in the immediate vicinity of the new properties. A total provision of approximately 5.36ha of open space and landscape planting is proposed, not including small pockets and strips of grassland. These areas will have permanent public access. In addition, the Development Proposals include 0.74ha of formal sports provision (MUGA and other pitches) and 1ha of land for use by the Scouts.

6.5. Within the 5.36ha of open space, there is a need to deliver equipped children's play areas and the proposed provision totals 0.15ha, leaving around 5.2ha of open space will be available for informal recreation activities. Of this 5.2ha, 3.29ha will be open semi-natural greenspace comprising wildflower grassland and tree / shrub planting. The open space provision is well in excess of that which is required in line with the relevant Supplementary Planning Document. Further detail on open space provision is provided within the Landscape and Visual Impact Assessment submitted as part of the planning application and this should be read in conjunction with this document.

6.6. The proposed open space has a clear flow through the proposed development, providing good opportunities for a variety of circular walks, both in terms of length and habitats present. Away from formal play areas, dogs will be allowed to run off the lead, which is an important consideration in relation to replicating (insofar as possible) coastal walk experiences for dog walkers.

6.7. It should be noted that the proposed open space provision links with the ANOG delivered through the consented planning application associated with land to the north of Summer Lane, Pagham. This functional link is of significance on the basis that the extent of quality informal open space for recreation (including dog walking) in this part of Pagham will be greatly increased. Whilst both the ANOG and the open space provision proposed for this application individually mitigate any perceived effects associated with increased recreational pressure on the SPA/Ramsar site when each proposal is considered in isolation (and 'alone', under the Habitats Regulations) taken together the two areas are of even greater value to the local community.

6.8. Following from the above, it is important to note that there is a lack of good quality open space for informal recreation in the local area. The provision will therefore be of benefit not just to new residents associated with the Development Proposals, but also existing residents in the local area. On this basis the proposals will, at least to some extent, contribute to reducing existing pressures on the SPA/Ramsar site.

6.9. The open space will be subject to a suitable management regime to maintain an informal and safe environment for users. It will be managed in perpetuity and secured by way of a section 106 planning agreement. It is considered that the detail of any required management plan could be agreed by way of a suitably worded planning condition attached to any planning permission, or form part of a Reserved Matters application.

6.10. In addition, to encourage use of the onsite open space provision and deter additional visits to the SPA/Ramsar site, signage and homeowner welcome packs will be provided emphasising the sensitivities of Pagham Harbour and promoting the recreational opportunities available elsewhere (e.g. within the Application Site itself).

6.11. The open space will be available to new residents ahead of first occupation, thus before a potential adverse effect on the SPA / Ramsar site could occur.

6.12. As stated above, the intension is to create a significant area of open space which offers opportunities for recreation (including dog walking) which will be easily accessible to the new residents associated with the Development Proposals. It is accepted that the proposals will not deliver an experience akin to that found at the coast, and some new residents would be likely to visit the SPA / Ramsar site on occasion. It is expected however, that the open space provision will reduce the overall number of potential visits to the SPA / Ramsar site (and SSSI) by offering an easily accessible area for regular (e.g. daily / routine) dog walks by new residents.

6.13. The above measures are commended to the local planning authority as representing a suitable package of measures which will alleviate both existing and potential increased recreation at the SPA / Ramsar site. It is however noted that Natural England considers that even in instances where open space is provided for new residents, increased visitor pressure is still

likely to result, when considering residential development proposals in combination with other plans / projects. On this basis, consideration has been given to the requirement for further mitigation / avoidance measures, such that when the Development Proposals are considered both alone and in combination, the conclusion of 'no adverse effect on integrity' can be safely reached. This additional mitigation is discussed below.

Visitor access management and monitoring

6.14. A widely accepted approach to such mitigation / avoidance measures, is for visitor access and management initiatives (e.g. wardening, signage and footpath management) to be implemented at the designated site itself and funded through developer contributions.

6.15. It is understood from discussions with Natural England and a review of information available (including an Appropriate Assessment[2] undertaken to inform the Arun Local Plan) from Arun District Council, that a strategic level approach to mitigation for the Pagham Harbour SPA / Ramsar site has been formulated and this is currently adopted as an interim planning policy approach. It is understood that that the relevant projects to be funded and the associated direct costs have been identified. The identified projects are understood to be as follows:

- Provision of part time wardening;
- Signage / interpretation and education; and
- Monitoring the effectiveness of the measures.

6.16. The Applicant is fully committed to the payment of a developer contribution towards a strategic level mitigation / avoidance strategy. The final sum payable would be secured by way of a section 106 agreement. In this way the Competent Authority can be assured (i.e. no doubt remains) that appropriate mitigation / avoidance measures will be delivered ahead of any potential significant effect arising in relation to the Development Proposals.

6.17. It is considered that (having adopted a precautionary stance) the provision of new recreational opportunities within the Development Proposals and a financial contribution towards agreed and properly targeted visitor access / management initiatives at the SPA / Ramsar site / SSSI, would avoid any potential significant adverse effects on the SPA / Ramsar site / SSSI through increased recreational pressure when the project is considered both alone and in combination with other plans or projects. Having undertaken an assessment of all possible effects on the SPA / Ramsar site as a result of the Development Proposals, it is considered that the plan / project would not be give rise to an adverse affect on the integrity of the European site, when the plan / project is considered alone. At worst, the plan / project would give rise to effects which would be classed as *de minimis*.

[2]Urban Edge Environmental Consulting, February 2017. Habitats Regulations Assessment for the Arun Local Plan: Supplementary Work Stage 3 Report: Appropriate Assessment

Supporting habitat issues

6.18. As discussed further above, there is some evidence to suggest that the Application Site is used by Dark-bellied Brent Geese, but not on any scale which could be considered significant. It is considered that there is insufficient evidence to show that the Application Site can be considered as supporting habitat for the SPA / Ramsar site. Notwithstanding this, the Applicant is committed to delivering gains for biodiversity at the Application Site and an element of the proposed enhancements package has been broadened / increased in order to give the Competent Authority greater comfort in relation to any perceived residual impacts on Dark-bellied Brent Geese.

6.19. As can be seen from the illustrative masterplan, the western boundary of the Application Site includes a wide swath of open space along its entire length. It is proposed that dense new tree planting will be introduced along the boundary, significantly bolstering existing hedgerows (present along most of the boundary). This new planting will act to buffer the development from existing arable and grassland habitat to the west and thus alleviate potential impacts from visual disturbance on Dark-bellied Brent Geese. Furthermore, following advice from Natural England (see Appendix 9) stock fencing is to be introduced along the western and southern boundaries in order to prevent dogs from accessing land to the south and west, when run off the lead, especially during the planting establishment period.

6.20. There is no proposal at present to close any footpaths which link with (or provide access to others which link with) the SPA / Ramsar site, however use of these paths will not be promoted on signage or within any literature provided to new residents. Instead, use of on-site open space will be promoted for use, especially by dog walkers and it will be made clear on the proposed signage that certain interest features of the SPA/Ramsar site use other habitats in the vicinity and these species are sensitive to disturbance.

6.21. It is considered that in securing these measures as part of the planning process, by way of Condition or legal agreement as applicable, the Competent Authority can be comfortable that no likely significant adverse effects arise in relation to matters concerning supporting habitat for SPA/Ramsar species (e.g. Dark-bellied Brent Geese).

6.22. In addition to the above, in direct liaison with Natural England a bespoke package of mitigation / enhancement measures has been devised which will deliver suitable habitat for foraging Brent Geese, for the long term. Full details are included in the report at Appendix 10. Natural England's letter at Appendix 9 confirms that it is fully supportive of the proposed measures and mechanisms for securing them.

Summary conclusion

6.23. Ecology Solutions have considered all of the potential significant effects that could arise from the Development Proposals in view of the European sites Conservation Objectives. In light of the assessment undertaken and with due regard had to relevant case law, the avoidance and mitigation

measures proposed, Ecology Solutions conclude that the proposals would not adversely affect the integrity of the SPA / Ramsar site when the Development Proposals are considered either alone or in combination with other plans or projects. No additional potential significant effects have been identified in relation to Pagham Harbour SSSI and no additional mitigation would be required.

7. SUMMARY AND CONCLUSIONS

7.1. Ecology Solutions has undertaken an initial screening assessment of the implications of the Development Proposals on the Pagham Harbour SPA / Ramsar site in view of the European sites conservation objectives. Further detailed assessment has then been undertaken, including the proposal of specific avoidance and mitigation measures.

7.2. The findings of this work are set out within this Information to enable a Habitats Regulations Assessment document, such that the competent authority, in exercising its duties under the Habitats Regulations, has all the necessary information before it to consider the application.

7.3. Assessment under Regulation 63 of the Habitats Regulations is required in this instance, since the Application Site lies in relatively close proximity to the Pagham Harbour SPA / Ramsar site. Consideration has also been given to any additional impacts which could arise in relation to the Pagham Harbour SSSI, wherever relevant and other European level designated sites.

7.4. The principal potential adverse impacts which could arise in respect of the SPA / Ramsar site / SSSI are through increased visitor pressure, although impacts in relation to hydrology and supporting habitat have also been considered.

7.5. No potential significant effects on the SPA / Ramsar site / SSSI were identified in relation to hydrological impacts and no additional, specific mitigation is considered necessary in this instance.

7.6. With regard to potential increased recreational pressure at the SPA / Ramsar site / SSSI, mitigation / avoidance measures have been put forward following detailed discussions with Natural England. The proposed measures are supported by Natural England, whose position is clearly described within the letters dated 29th June 2016 and 13th December 2017, copies of which are appended to this document.

7.7. As part of the Development Proposals, a significant area of informal open space will be provided for recreational purposes, including dog walking. This provision will be well in excess of that required by the local planning authority for amenity purposes. The open space will deliver an attractive and natural environment for informal recreation where dogs can be exercised off the lead, with grassland, scrub / trees and boundary hedgerows. A network of footpaths will enable circular walks. The open space would be maintained in perpetuity and will be the subject of a Section 106 planning agreement.

7.8. New residents would be provided with a pack highlighting the recreation opportunities available in the new open space area and the sensitivities of the SPA / Ramsar site. The likelihood of residents utilising the open space resource would be increased further through appropriate signage.

7.9. In addition, the Applicant is committed to the securing of an appropriate financial contribution, as set within the interim mitigation / avoidance strategy for the SPA / Ramsar site.

7.10. It is considered that the provision of the financial contribution, open space and education/interpretation initiatives would avoid any potential significant adverse effects that the Development Proposals could have on the SPA / Ramsar site through increased recreational pressure.

7.11. Additionally, mitigation has been put forward in relation to addressing any perceived adverse effects on wintering Dark-bellied Brent Geese, which may utilise the Application Site. This is put forward on a precautionary basis, noting the lack of evidence to support any claim that the Application Site is of significant importance for the species. The mitigation is centred around minimising disturbance on the species and securing long term habitat enhancements for the species close to the SPA / Ramsar.

7.12. It is considered that this IHRA contains all the information required for the Competent Authority to undertake an Appropriate Assessment of the Development Proposals. It is considered that there would not be an adverse effect on the integrity of Pagham Harbour SPA/Ramsar site when the Development Proposals are considered, either alone or in combination with other plans/projects, with reference to the test at Regulation 63(1) of the Habitats Regulations. No additional impacts have been identified in relation to Pagham Harbour SSSI and no additional mitigation measures are considered necessary.

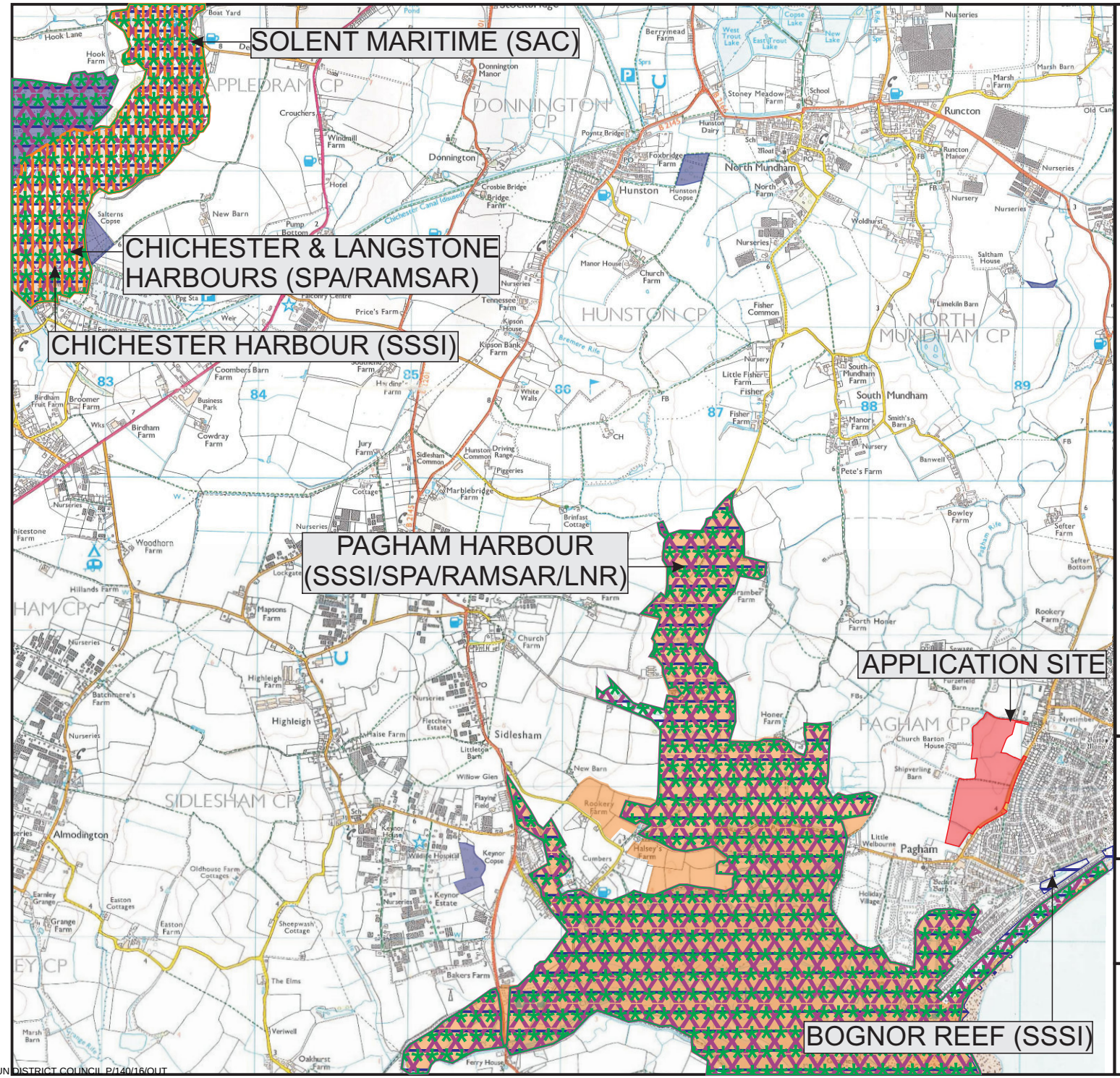
7.13. As the project alone or in combination would not contribute to an adverse impact on the integrity of the SPA / Ramsar site (in view of the SPA conservation objectives), or adverse impacts on the SSSI, the Development Proposals would by definition be acceptable, subject to securing the mitigation and avoidance measures proposed. In those terms the competent authority could legally and safely grant consent for the proposed plan/project.

PLANS AND APPENDICES

PLANS

PLAN ECO1

Application Site location in relation to relevant European designated sites



KEY:

- APPLICATION SITE
- SPECIAL PROTECTION AREA (SPA)
- SPECIAL AREA OF CONSERVATION (SAC)
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- RAMSAR SITE
- LOCAL NATURE RESERVE (LNR)
- ANCIENT WOODLAND

N.B. Solent to Dorset Coast pSPA overlaps Pagham Harbour SPA, with the boundary drawn to mean high water at this location.

ecology solutions ltd

5633: PAGHAM SOUTH

PLAN ECO1: APPLICATION SITE LOCATION AND ECOLOGICAL DESIGNATIONS

Based upon the Ordnance Survey map with permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Ecology Solutions Ltd, Farncombe Estate, Broadway, Worcestershire, WR12 7LJ. AL 100044628

APPENDICES

APPENDIX 1

Copy of the Conservation Objectives for Pagham Harbour SPA

European Site Conservation Objectives for Pagham Harbour Special Protection Area Site Code: UK9012041

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;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

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

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding)

A151 *Philomachus pugnax*; Ruff (Non-breeding)

A193 *Sterna hirundo*; Common tern (Breeding)

A195 *Sterna albifrons*; Little tern (Breeding)

This is a European Marine Site

This SPA is a part of the Pagham Harbour European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Regulation 35 Conservation Advice document for the EMS. For further details about this please visit the Natural England website at: http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/europeansites.aspx or contact Natural England's enquiry service at enquiries@naturalengland.org.uk or by phone on 0845 600 3078.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where this is available) will also provide a framework to inform the management of the European Site under the provisions of Articles 4(1) and 4(2) of the Wild Birds Directive, and the prevention of deterioration of habitats and significant disturbance of its qualifying features required under Article 6(2) of the Habitats Directive.

These Conservation Objectives are set for each bird feature for a Special Protection Area (SPA). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 30 June 2014 (Version 2). This document updates and replaces an earlier version dated 29 May 2012 to reflect Natural England's Strategic Standard on European Site Conservation Objectives 2014. Previous references to additional features identified in the 2001 UK SPA Review have also been removed.

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APPENDIX 2

SPA Natura Form, Ramsar Information Sheet and SSSI citation

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY	
Designation date	Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 30 March 1988

3. Country:

UK (England)

4. Name of the Ramsar site:

Pagham Harbour

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

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7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

50 45 48 N 00 45 38 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Chichester

10 km south-east of Chichester.

Administrative region: West Sussex

10. Elevation (average and/or max. & min.) (metres):

Min. -1
Max. 5
Mean 1

11. Area (hectares): 636.68

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Pagham Harbour comprises an extensive central area of saltmarsh and tidal mudflats with surrounding habitats including lagoons, shingle, open water, reed swamp and wet permanent grassland.

The intertidal mudflats are rich in invertebrate and algae, and provide important feeding areas for birds. The lower saltmarsh is dominated by common cord-grass but also includes patches of glasswort. At higher levels sea-purslane is abundant. The area supports internationally important numbers of wintering pintail and nationally important numbers of dark-bellied brent goose, grey plover and black-tailed godwit.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

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Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

Dark-bellied brent goose, *Branta bernicla bernicla*,	2512 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in winter:

Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	377 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. **Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation)**:**

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, shingle, sand, mud, clay, alluvium, nutrient-rich, sedimentary, gravel
Geomorphology and landscape	lowland, coastal, floodplain, shingle bar, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), open coast (including bay), enclosed coast (including embayment), estuary, islands, lagoon, pools
Nutrient status	mesotrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent

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Summary of main climatic features	Annual averages (Bognor Regis, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/bognor_regis.html) Max. daily temperature: 13.7° C Min. daily temperature: 7.7° C Days of air frost: 24.0 Rainfall: 717.4 mm Hrs. of sunshine: 1902.9

General description of the Physical Features:

Pagham Harbour is an estuarine basin that comprises an extensive central area of saltmarsh and intertidal mudflats, surrounded by lagoons, shingle, open water, reed swamp and wet permanent grassland.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Pagham Harbour is an estuarine basin that comprises an extensive central area of saltmarsh and intertidal mudflats, surrounded by lagoons, shingle, open water, reed swamp and wet permanent grassland.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	33.3
Other	Other	31
E	Sand / shingle shores (including dune systems)	20.1
H	Salt marshes	5.2
F	Estuarine waters	3.3
J	Coastal brackish / saline lagoons	2.4
Sp	Saline / brackish marshes: permanent	2.2
Tp	Freshwater marshes / pools: permanent	0.8
W	Shrub-dominated wetlands	0.6
A	Shallow marine waters	0.6
M	Rivers / streams / creeks: permanent	0.3
9	Canals and drainage channels	0.2

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

This site comprises an extensive central area of saltmarsh and tidal mudflats with surrounding habitats including shingles, open water, reed swamp and wet permanent grassland. Pagham Harbour is of national importance for wintering, wildfowl and waders and also for breeding birds both within the Harbour and the surrounding grazing pasture. The site supports nationally important communities of plants and invertebrates.

Ecosystem services

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21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Petrorhagia nanteuilii

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Little egret , *Egretta garzetta*, West Mediterranean	60 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)
Whimbrel , *Numenius phaeopus*, Europe/Western Africa	104 individuals, representing an average of 3.4% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Common greenshank , *Tringa nebularia*, Europe/W Africa	20 individuals, representing an average of 3.3% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Slavonian grebe , *Podiceps auritus*, Northwest Europe	14 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
Northern pintail , *Anas acuta*, NW Europe	462 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering	704 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	5 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Nematostella vectensis

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Aquatic vegetation (e.g. reeds, willows, seaweed)
Archaeological/historical site
Environmental education/ interpretation

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Fisheries production
Livestock grazing
Non-consumptive recreation
Scientific research
Sport fishing
Sport hunting
Tourism

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Bait collection	+	+
Arable agriculture (unspecified)		+
Permanent arable agriculture		+
Livestock watering hole/pond	+	+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	+
Sewage treatment/disposal	+	+
Flood control	+	+
Irrigation (incl. agricultural water supply)		+
Transport route		+

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Urban development		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

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29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Contemporary.

Fauna.
Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Completed.

Environment, Flora and Fauna.
Extensive research and surveys into tidal regimes, sediment movement and the distribution of all major animal and plant groups has been carried out in Pagham Harbour.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

There is an interpretative centre for the Local Nature Reserve.
A full time Education Officer is employed, the programme being particularly directed at schoolchildren.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.
Land based recreation:

Walking including dog walking - all year.

Bird watching - all year.

Sea bathing - mostly summer.

Wildfowling: Only in agreed areas - 1 September to 20 February

Adjacent seasonal caravan parks - mainly summer.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Barne, JH, Robson, CF, Kaznowska, SS, Doody, JP & Davidson, NC & Buck, AL (eds.) (1998) *Coasts and seas of the United Kingdom. Region 8 Sussex: Rye Bay to Chichester Harbour*. Joint Nature Conservation Committee, Peterborough. (Coastal Directories Series.)

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Doody, JP, Johnston, C & Smith, B (1993) *Directory of the North Sea coastal margin*. Joint Nature Conservation Committee, Peterborough

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Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

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Robinson, AWH (1995) The harbour entrances of Poole, Christchurch and Pagham. *Geographical Journal*, **121**(1), 33 50

Sheader, M & Sheader, A (1989) Lagoon survey of the south coast, Dorset to East Sussex, 1989. Final report. *Nature Conservancy Council, CSD Report*, No. **1116**

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Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

West Sussex County Council (1987) *A guide to Pagham Harbour Nature Reserve*. West Sussex County Council, Chichester

Wood, C (ed.) (1984) Sussex sublittoral survey. Selsey Bill to Beachy Head. *Nature Conservancy Council, CSD Report*, No. **527**

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

ARUN DISTRICT COUNCIL P/140/16/OUT

NATURA 2000 – STANDARD DATA FORM

Special Protection Areas under the EC Birds Directive.

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 (2011/484/EU).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Protection Areas (SPAs) in the United Kingdom is available from the SPA home page on the JNCC website. This webpage also provides links to Standard Data Forms for all SPAs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE	**UK9012041**
SITENAME	**Pagham Harbour**

TABLE OF CONTENTS

- 1. SITE IDENTIFICATION
- 2. SITE LOCATION
- 3. ECOLOGICAL INFORMATION
- 4. SITE DESCRIPTION
- 5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES
- 6. SITE MANAGEMENT

1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
A	UK9012041

1.3 Site name

Pagham Harbour

1.4 First Compilation date	1.5 Update date
1988-03	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

1.7 Site indication and designation / classification dates

Date site classified as SPA:	1988-03
National legal reference of SPA designation	Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
-0.760555556	50.76333333

2.2 Area [ha]:

629.01

2.3 Marine area [%]

53.4

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKJ2	Surrey, East and West Sussex

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A675	Branta bernicla bernicla			w	1794	1794	i		G	C		C	
B	A151	Philomachus pugnax			w	10	10	i		G	C		C	
B	A195	Sterna albifrons			r	7	7	p	P	G	C		C	
B	A193	Sterna hirundo			r			p	P	DD	C		C	

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information

- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N03	5.2
N02	39.2
N01	0.6
N07	2.8
N14	30.3
N06	1.0
N16	0.7
N05	20.2
Total Habitat Cover	100.00000000000001

Other Site Characteristics

1 Terrestrial: Soil & Geology: shingle,clay,nutrient-rich,mud,neutral,sedimentary,alluvium,sand 2 Terrestrial: Geomorphology and landscape: coastal,lowland,floodplain 3 Marine: Geology: shingle,gravel,mud,sedimentary 4 Marine: Geomorphology: estuary,islands,subtidal sediments (including sandbank/mudbank),lagoon,pools,open coast (including bay),intertidal sediments (including sandflat/mudflat),shingle bar

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Sterna albifrons (Eastern Atlantic - breeding) 0.3% of the GB breeding population 5 year mean, 1992-1996 Sterna hirundo (Northern/Eastern Europe - breeding) % of the GB breeding population Count, as at 1996 Over winter the area regularly supports: Philomachus pugnax (Western Africa - wintering) 1.4% of the GB population 5 year mean, 1995-1999 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: Branta bernicla bernicla (Western Siberia/Western Europe) 0.6% of the population 5 year peak mean 1991/92-1995/96

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	H02		B
H	G01		I
H	J02		B
H	F02		I

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	B02		I
H	G03		I
H	A02		I
H	D05		I

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

http://publications.naturalengland.org.uk/category/6490068894089216

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0				

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the official European Union guidelines for the Standard Data Form. The relevant page is shown in the table below.

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	Designated Special Protection Area	53
B	SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC)	53
C	SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar	53

3.1 Habitat representativity

CODE	DESCRIPTION	PAGE NO
A	Excellent	57
B	Good	57
C	Significant	57
D	Non-significant presence	57

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	15%-100%	58
B	2%-15%	58
C	< 2%	58

3.1 Conservation status habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global grade habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	15%-100%	62
B	2%-15%	62
C	< 2%	62
D	Non-significant population	62

3.2 Conservation status species (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Assemblages types

CODE	DESCRIPTION	PAGE NO
WATR	Non breeding waterfowl assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code
BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK02	Marine Nature Reserve	67
UK04	Site of Special Scientific Interest (UK)	67

COUNTY: WEST SUSSEX **SITE NAME:** PAGHAM HARBOUR

DISTRICT: CHICHESTER: ARUN

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981. Part of this site is a Local Nature Reserve (under S21 of The National Parks and Access to the Countryside Act 1949)

Local Planning Authority: CHICHESTER DISTRICT COUNCIL; ARUN DISTRICT COUNCIL

National Grid Reference: SZ 875 970 **Area:** 615.9 ha 1521.9 acres

Ordnance Survey Sheet 1:50,000: 197 **1:10,000:** SZ 89 NW, NE, SE

Date Notified (under 1949 Act): 1954 **Date of Last Revision:** 1980

Date Notified (under 1981 Act): 1986 **Date of Last Revision:**

Other Information: This site lies within the South Coast Plain. Pagham Harbour is a proposed NCR site. This site contains Pagham Harbour GCR site and part of Bognor Regis (Palaeobotany) GCR site. This is also a proposed Ramsar/SPA site.

Reasons for Notification:

This site comprises an extensive central area of salt-marsh and tidal mudflats with surrounding habitats including shingle, open water, reed swamp and wet permanent grassland.Pagham Harbour is of national importance for wintering wildfowl and waders and also for breeding birds both within the Harbour and the surrounding grazing pasture. The site supports nationally important communities of plants and invertebrates.

Pagham Harbour was reclaimed for agriculture in the late nineteenth century but was flooded again by a storm in the early twentieth century. The extensive intertidal mudflats are rich in algae and invertebrates and provide important feeding areas for birds.

Salt-marsh is a habitat threatened nationally through reclamation for agriculture.The lower part of the salt-marsh is dominated by the hybrid common cord-grass *Spartina anglica* with patches of the glassworts *Salicornia* spp. Above this zone sea-purslane *Halimione portulacoides* covers large areas with other species such as sea aster *Aster tripolium* in the periphery. At one part of the site within a mixed salt-marsh community greater sea-spurrey *Spergularia media* and sea lavender *Limonium vulgare* are found.The upper margin of the salt-marsh has developed a narrow strip of grassland dominated by sea couch *Elymus pycnanthus*.

Vegetated shingle is a nationally rare community. At Pagham, the type and extent of plant cover is dictated by the shifting nature of the substrates, the sea defence works, and by its relative exposure to the elements. In sheltered areas a diverse grass sward has developed with herbs such as early forget-me-not *Myosotis ramosissima*, biting stonecrop *Sedum acre* and the nationally endangered childing pink *Petrorhagia nanteuilli*. This contrasts with the sparse vegetation of the shingle ridge where the uncommon sea-kale *Crambe maritima* and yellow-vetch *Vicia lutea* are found.

Pagham Harbour has a wide variety of wetland habitats. Brackish drainage ditches dissect the land where common reed *Phragmites australis* dominates. This forms fairly extensive swamps in some areas including the Severals to the west of the Harbour which are important for breeding and migrating reed and sedge warblers. Sidlesham ferry to the north-west provides high water feeding and roosting areas for waders while Pagham Lagoon in the east is a stormy weather sheltering site for sea duck. Here may also be found the nationally endangered starlet sea anemone *Nematostella vectensis*.

The small amount of woodland at Pagham Harbour is dominated by willow and oak. One of these areas supports a small heronry. In contrast, the ancient woodland at Norton Priory is drier with oak standards and a rich ground flora. Scrub is found both in the form of hedges and as more extensive patches with hawthorn *Crataegus monogyna* and gorse *Ulex europaeus* being the main constituents. The damp unimproved grassland surrounding the Harbour is used as a major wader roost and is grazed by large numbers of Brent Geese. Some fields of improved grassland are included in the site as they too, support nationally important populations of birds.

Pagham Harbour is an overwintering area for over 120 species of bird. The numbers of wintering pintail, ringed and grey plover and black-tailed godwit regularly reach 1% of British populations and the site is of international importance for wintering ruff and Brent Geese. The mudflats also provide food for a diverse breeding community of birds including oystercatcher, shelduck and redshank.

Notable invertebrates include the sand dart *Agrotis ripae*, Matthew's wainscot moth *Mythimna favicolor* and the long-winged conehead grasshopper *Conocephalus discolor*.

Geology:

Pagham Harbour is a key site for coastal geomorphology. It is significant both as a classic shingle spit landform and for the links that have been demonstrated between the coastal near shore and offshore forms and sediments. The shingle spit system comprises a series of sub-parallel ridges and recurves, marking different phases of extension and frontal accretion. Shingle reaches the beach *via* the intertidal zone, and the so-called "Pagham delta" and the behaviour of the spits and delta are intimately linked with water and sediment circulation around the Selsey peninsula. The area also provides an excellent example of the role of weed rafting of shingle in coastal sediment budgets.

This site also includes, at the north-eastern end, part of a key site for plant fossils from the London Clay (divisions B_1 and B_2). It is the only locality in the Hampshire Basin to yield abundant London Clay plants and the only site known to have yielded plants from the B_2 division of this formation. The site has yielded examples of some one hundred and thirty species (representing seventy families), including numerous type specimens. Dominant families include the Vitaceae, Menispermaceae and Burseraceae.The genera *Bognoria* and *Aldwichia* are only found here, as are some thirty species. An outstanding palaeobotanical site of great importance to studies of Tertiary floras.

APPENDIX 3

Relevant SSSI Unit Condition Tables

Report generated on: 26 Mar 2015

Main Habitat	Responsible Officer	Unit Number	Unit Id	Area (ha)	NNR Overlap Area (ha)	Latest Assessment Date	Assessment Description	Comment	Adverse Condition Reasons
PAGHAM HARBOUR - WEST SUSSEX, (ARUN,CHICHESTER,)									
STANDING OPEN WATER AND CANALS	KRISTOFFER HEWITT	001	1008822	11.5833	0.00	26/10/2010	Unfavourable - Recovering	This unit was apparently affected by a pollution incident. Investigation did not reveal a source of pollution and there are no indications that there is a risk of a recurrence. Survey carried out by University of Brighton indicates that although there is still a rather impoverished flora and fauna, there are clear signs of recovery of the lagoon system. This includes relatively good overall populations of lagoon taxa, including 3 specialist lagoon species, and an absence of several taxa previously recorded that indicated organic enrichment. A previously recorded diverse gastropod community is not evident however. Further monitoring will be carried out to better understand the processes driving the biological composition of the site.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	002	1008829	1.8925	0.00	12/03/2009	Unfavourable - Recovering	Improvements have been made under AMP and through direct management and water qulaity is now improving.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	003	1017439	15.8196	0.00	01/10/2008	Favourable	The grassland is notified for the breeding birds it supports. The most recent Pagham Harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition.	

FEN, MARSH AND SWAMP - Lowland	KRISTOFFER HEWITT	004	1008840	9.4987	0.00	12/04/2005	Unfavourable - Recovering	A Management Agreement has now been signed, and a tender accepted for the works, so reed clearance should now take place in autumn 2005. This assessment has been made on the basis that management of the unit to achieve favourable condition has been secured through the WES agreement just signed, which addresses all reasons for unfavourable condition. It is not based on a full site assessment.	
FEN, MARSH AND SWAMP - Lowland	KRISTOFFER HEWITT	005	1017443	10.339	0.00	28/01/2010	Favourable	The unit, part of the Pagham Harbour Local Nature Reserve, is predominantly occupied by reed swamp dominated by common reed. The habitat is in good condition and well managed, and is considered to support suitable habitat for breeding and non-breeding bird assemblages. Woodland within the northern part of the unit is has not undergone any decline since the previous assessment and remains in good condition.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	006	1017441	12.9443	0.00	01/10/2008	Favourable	The grassland is notified for the breeding birds it supports and the wintering birds (brent geese). The Pagham harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition and the WeBS counts indicates the brent geese numbers are in favourable condition.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	007	1008830	62.5501	0.00	01/10/2008	Favourable	The grassland is notified for the breeding birds it supports and the wintering birds (brent geese). The Pagham harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition and the WeBS counts indicates the brent geese numbers are in favourable condition.	

NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	008	1008831	26.2269	0.00	01/10/2008	Favourable	The grassland is notified for the breeding birds it supports and the wintering birds (brent geese). The Pagham harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition and the WeBS counts indicates the brent geese numbers are in favourable condition.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	009	1008832	32.7494	0.00	28/01/2010	Favourable	The unit, part of the Pagham Harbour Local Nature Reserve, is predominantly occupied by lowland neutral grassland. The area is well managed, involving grazing and coppicing some of the ditches in sections to encourage the aquatic plant diversity. The unit is considered to support suitable habitat for breeding bird assemblage.	
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	KRISTOFFER HEWITT	010	1008825	2.616	0.00	29/04/2009	Unfavourable - Recovering	WGS has been agreed for the wood and is underway, with works concentrating on removal of bracken, rhododendron and sycamore. Early results are very encouraging.	

NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	011	1008834	10.7349	0.00	28/01/2010	Favourable	The unit is occupied by a mosaic of woodland, lowland neutral grassland and reed swamp dominated by common reed. The area appears to be well managed, and is considered to support suitable habitat for breeding bird assemblage. The woodland exhibits good structural diversity including oak, yew, alder and hawthorn, with bramble and gorse occupying the groundlayer, along with satisfactory levels of standing/ lying deadwood. In addition, a small area of habitat with affinities to dune heath was observed on the eastern margin of the unit adjacent to the public footpath, supporting a good cover of lichens and bryophytes such as Cladonia spp, Rhytidiadelphus squarrosus, Pseudoscleropodium purum and Dicranum scoparium. This area soon grades into neutral grassland towards the centre of the unit. The site is also subject to rabbit grazing, which is not considered to be having a significant adverse impact on the site.	
LITTORAL SEDIMENT	KRISTOFFER HEWITT	012	1008823	35.434	0.00	28/01/2010	Favourable	The northern half of the unit is dominated by littoral sediment and upper saltmarsh, dominated by sea-purslane and common cord-grass (Spartina). The southern half of the site is mainly littoral sediment with some amounts of sea-purslane dominated salt marsh and small areas of shingle on the southern margin. The saltmarsh has not appeared to undergo any significant decline since the previous assessment, and is considered to provide suitable supporting habitat for aggregations of non-breeding birds.	

SUPRALITTORAL SEDIMENT	KRISTOFFER HEWITT	014	1017447	19.0505	0.00	12/09/2008	Favourable	First CVSM assessment and the vegetated shingle came out well. The coastal geopmorphology is also in favourable condition.	
EARTH HERITAGE	KRISTOFFER HEWITT	015	1016777	12.9243	0.00	10/06/2010	Favourable	Site visited with SSSI officer Elaine Webster. SSSI inetrest feature assesed: SD1 - Rumex crispus - Glaucium flavum shingle community. The unit, part of the Pagham Harbour Local Nature Reserve, supports some strandline vegetation including Atriplex prostrata Spear-leaved Orache, Beta maritima Sea Beet, Sedum acre Biting Stonecrop and Suaeda maritima Annual Sea-blite. Since the previous assessment the shingle bar has shifted in position, as part of the natural dynamic processes of the shingle system. This change does not affect the assessment of this unit.	

EARTH HERITAGE	KRISTOFFER HEWITT	016	1017438	57.6464	0.00	10/06/2010	Favourable	Site visited with SSSI Officer Elaine Webster. SSSI inetrest feature assessed: SD1 - Rumex crispus - Glaucium flavum shingle community. The unit, part of the Pagham Harbour Local Nature Reserve, supports shingle vegetation in its northern half including several positive indicator species, dominated by Crambe maritima with frequent Elytrigia atherica and occasional Glaucium flavum, Sedum acre, Cerastium diffusum and Solanum dulcamara. However, invasive red valerian Centranthus ruber is at risk of encroaching into the northern half of the unit and requires immediate attention. The council who are responsible for managing the Local Nature Reserve are aware of this problem. Much of this vegetation appears to have encroached from adjacent unit 14.	
BROADLEAVED, MIXED AND YEW WOODLAND - Lowland	KRISTOFFER HEWITT	017	1017442	1.0521	0.00	01/10/2008	Favourable	The woodland is notified for the breeding birds it supports, in particular the small heronry. The Pagham Harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition and the heronry in this unit is doing well.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	018	1008833	13.0362	0.00	01/10/2008	Favourable	The rough grassland is notified for the breeding birds it supports. The Pagham Harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition.	

FEN, MARSH AND SWAMP - Lowland	KRISTOFFER HEWITT	019	1017444	2.412	0.00	01/10/2008	Favourable	The grassland and fen is notified for the breeding birds it supports. The Pagham Harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition.	
LITTORAL SEDIMENT	KRISTOFFER HEWITT	020	1017445	250.291	0.00	01/10/2008	Favourable	The intertidal sediment is notified for the wintering birds it supports. WeBS and other counts indicates the wintering wader and wildfowl numbers are in favourable condition. The saltmarsh was assessessed on 22 July and was favourable, though it was noted that the Spartina is still dominant over large areas.	
LITTORAL SEDIMENT	KRISTOFFER HEWITT	021	1017446	3.2476	0.00	01/10/2008	Favourable	The intertidal sedimentis notified for the wintering birds it supports. WeBS and other counts indicates the wintering wader and wildfowl numbers are in favourable condition.	
NEUTRAL GRASSLAND - Lowland	KRISTOFFER HEWITT	022	1017440	8.0815	0.00	27/10/2008	Unfavourable - Recovering	The grassland and fen is notified for the breeding birds it supports and the wintering birds (mainly brent geese). The Pagham Harbour LNR breeding bird survey has identified the breeding bird interest as being in favourable condition and the WeBS and other counts indicates the brent geese and other wader/ wildfowl numbers are in favourable condition. Works are continuing on improvements to trhe new scrape to get better control of water levels and these will greatly improve its potential for breeding waders when completed.	

SUPRALITTORAL SEDIMENT	KRISTOFFER HEWITT	023	1029561	9.4054	0.00	10/06/2010	Unfavourable - No change	SSSI interest feature assessed: SD1 - Rumex crispus - Glaucium flavum shingle community. The unit, under private ownership, supports shingle vegetation including several positive indicator species, dominated by Crambe maritima with frequent Elytrigia atherica and occasional Glaucium flavum Yellow-horned Poppy, Echium vulgare Viper?s-bugloss, Sedum acre Biting Stonecrop, Tripleurospermum maritimum Sea Mayweed, Cerastium diffusum Sea Mouse-ear and Solanum dulcamara Bittersweet. However the unit has been heavily invaded by red valerian Centranthus ruber which has established a dense and expanding cover, most likely as a result of garden invasives from the adjacent houses. It appears little action has been taken to remove this species over recent years, and requires immediate action to prevent further encroachment. This should be addressed preferably as part of a wider plan to address this invasive species for the SSSI as a whole. In addition, some of the neighbouring residents keep boats on the unit which has resulted in some degradation of existing shingle vegetation.	LACK OF CORRECTIVE WORKS - INAPPROPRIATE WEED CONTROL,

SUPRALITTORAL SEDIMENT	KRISTOFFER HEWITT	024	1029562	19.4761	0.00	10/06/2010	Favourable	Site visited with SSSI Officer Elaine Webster. SSSI interest feature assessed: SD1 - Rumex crispus - Glaucium flavum shingle community. The unit, part of the Pagham Harbour Local Nature Reserve, supports shingle vegetation including several positive indicator species, dominated by Crambe maritima with frequent Elytrigia atherica and occasional Glaucium flavum Yellow-horned Poppy, Echium vulgare Viper?s-bugloss, Sedum acre Biting Stonecrop, Tripleurospermum maritimum Sea Mayweed, Cerastium diffusum Sea Mouse-ear and Solanum dulcamara Bittersweet. In addition there are patches of lichen cover (Cladonia spp and a black lichen which indicates minimal disturbance) scattered across the south-western end of the unit. Much of this vegetation is in good condition with these species occurring at appropriate levels of cover across the unit, especially within the south-western end of the unit. In addition, scattered Silene uniflora Sea Campion occurs within the central part of the unit near to the car park. However this appears to be adversely affected by rabbit grazing in this area which should be	

APPENDIX 4

Copy of Natural England letter dated 29th June 2016

Date: 29 June 2016
Our ref: DAS/187760
Your ref:

Karl Goodbun
Ecology Solutions
Farncombe House
Farncombe Estate
Broadway
Worcs WR12 7LJ

BY EMAIL ONLY
Karl.goodbun@ecologysolutions.co.uk

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

Dear Karl

Discretionary Advice Service (Charged Advice)
DAS/10802/187760
Development proposal and location: Up to 400 dwellings on land south of Summer Lane, Pagham

Thank you for your consultation on the above dated 08 June 2011, which was received on the same date.

This advice is being provided as part of Natural England's Discretionary Advice Service. Ecology Solutions Ltd has asked Natural England to provide advice upon:

- Potential impacts on Pagham Harbour SPA/Ramsar and Chichester and Langstone Harbours SPA/Ramsar site
- Site layout, including green infrastructure
- On- and off-site avoidance and mitigation measures, to feed into the information for a draft Habitats Regulations Assessment (HRA).

This advice is provided in accordance with the Quotation and Agreement dated 17 June 2016.

The following advice is based upon the information within the Request for Discretionary Advice Service form provided on 8 June 2016, and discussed at the meeting with yourself and Mike Davis on 22 June 2016. At this meeting, a draft site plan was presented illustrating the location, draft layout and green space associated with the development. As the proposal is in the early stages of development, detailed plans, and information on some impacts, are not yet available. Therefore, the purpose of the meeting was to discuss the principal of residential development in this location, and to confirm the information that should be included in a report to inform an HRA, which would be submitted with any subsequent planning application.

Protected sites

Chichester and Langstone Harbours SPA/Ramsar site and Solent to Dorset Coast pSPA:
Natural England has no concerns
Natural England is satisfied that, on the basis of the objective information provided, it can be excluded that the proposed plan or project will have a significant effect on the Chichester and Langstone Harbours SPA/Ramsar site and Solent to Dorset Coast pSPA, either individually or in combination with other plans or projects. This is because the draft site plan provided indicates that the application site is beyond the 5.6km zone of influence, within which residential development may have a cumulative recreational disturbance impact on Chichester and Langstone Harbours

SPA/Ramsar site. Additionally, as the application site is around 450m from the Solent to Dorset Coast pSPA, there is unlikely to be any disturbance effect on foraging sandwich terns from noise during construction or operation.

Furthermore, Natural England is satisfied that the proposed operations are not likely to damage any of the interest features of the Chichester Harbour SSSI.

Pagham Harbour SPA/Ramsar site
Natural England's view is that the proposal has the potential to have a significant effect on the Pagham Harbour SPA/Ramsar site, either individually or in combination with other plans or projects. However, as discussed at the meeting on 22 June, and detailed below, our view is that mitigation measures are available, and provided that any necessary measures are secured, there should be no in principle reason under the Habitats Regulations that residential development should not be considered on the site.

Natural England advises that the proposal for up to 400 dwellings on land south of Summer Lane, Pagham, has the potential to have a likely significant effect on Pagham Harbour SPA/Ramsar through:

- recreational disturbance in combination with other residential development in the area;
- potential loss of functionally linked habitat, supporting dark-bellied brent geese;
- potential water quality impacts.

As the application site is around 450m from Pagham Harbour SPA/Ramsar site, Natural England is satisfied that noise disturbance impacts during construction, urban edge effects and risks from the spread of invasive non-native species, can be ruled out.

Natural England therefore advises that information on the following areas of potential impact should be provided in a report to inform a Habitats Regulations Assessment, which should be submitted with any planning application for the site.

Furthermore, Natural England advises that the proposal has the potential to impact the interest features of the Pagham Harbour Site of Special Scientific Interest (SSSI). The SSSI is notified for Aggregates of non-breeding birds and Assemblage of breeding birds. Natural England therefore advises that consideration of impacts on the bird interest features of the SSSI, and any necessary mitigation, should be included in any Environmental Assessment for this proposal. Further details on the SSSI can be found on our website: https://designatedsites.naturalengland.org.uk/

Mitigation measures for recreational disturbance to SPA birds
A strategic approach to mitigating recreational disturbance resulting from new residential development around Pagham Harbour has been put in place by Arun and Chichester District Councils, in consultation with Natural England and the RSPB. This strategic approach takes the form of a package of measures comprising:

- provision of a part-time, year-round, warden post in perpetuity, to encourage responsible use of the harbour;
- a dog project including website and events;
- contribution to signage and interpretation;
- monitoring.

The implementation of this strategic approach is in the process of being finalised.

Natural England's view is that the package of measures described above, and agreed with the two local authorities, would be sufficient to mitigate for the proposal for up to 400 dwellings on land south of Summer Lane, in combination with the level of housing envisaged in the Arun Local Plan 2011-2031 Publication version October 2014 (and in the Chichester Local Plan Key Policies 2014-2029). However, if housing numbers in the Arun Local Plan increase significantly, this may mean that the package of measures may need to be scaled upwards. This will be assessed through Appropriate Assessment of the housing scenarios (as noted in Arun District Council's Stage 2 Report: Screening for Likely significant effects document dated April 2016, see:

http://www.arun.gov.uk/local-plan-examination). Therefore, confirmation of the final tariff per dwelling should be sought from Arun District Council.

Provided this proposal falls within the agreed strategic approach and adequate contributions are secured from the applicant towards the strategy, it should be possible to deliver an acceptable and effective package of avoidance and mitigation measures for the proposal on land south of Summer Lane. This would enable Arun District Council to draw a conclusion of no likely significant effect on Pagham Harbour from recreational disturbance in their Habitats Regulations Assessment (HRA).

Green infrastructure measures on the development site, as well as the above strategic measures, were discussed at the meeting on 22 June. Natural England's view is that green infrastructure measures on their own are insufficient to avoid a likely significant effect from recreational disturbance to Pagham Harbour SPA/Ramsar site. However, attractive greenspace within the development site, which allows dog owners to let their dogs off leads, may take some of the short daily dog walks away from the harbour. It would also allow the development to comply with policy ENV DM2 in the emerging Arun Local Plan, which requires measures on- and off- the SPA.

The draft site plan presented at the meeting on 22 June shows green corridors and green space shared with the development to the north of Summer Lane, which is currently going through planning. Natural England understands that masterplanning for the proposal south of Summer Lane is in its early stages, but in principal, the greenspace and green corridors look acceptable. It would be helpful to include, in any planning application for the site, information on the area of greenspace, lengths of dog walking routes, and any signage and interpretation to be provided on the development site (any signage necessary off-site will be provided through the strategic approach). Natural England advises that these measures should be over and above the requirement for public open space provision recommended by the local authority, and should be provided and maintained in perpetuity.

Potential loss of functionally linked habitat
Dark-bellied brent geese forage within, and on land near to, Pagham Harbour SPA/Ramsar site. Where the geese forage on land outside the SPA/Ramsar site, this land may be considered functionally linked to the SPA/Ramsar by providing supporting habitat. Its loss should, therefore, be considered in any in combination assessment of impacts under the Habitats Regulations.

The potential for the application site to provide foraging habitat for brent geese was discussed at the meeting on 22 June. In particular, bird surveys undertaken in the winter of 2014/15 and submitted in support of the application for 90 dwellings to the north of Summer Lane, were discussed. You stated that further wintering bird surveys of the area were not proposed. This is acceptable provided that a check is made to see if any records from the area have been collected by third parties, which may include Solent Bird Studies (http://www.solentbirds.org.uk/), RSPB Pagham Harbour, and Sussex Ornithological Society. These should be included in an updated wintering bird report to be submitted with any planning application. It would also be helpful if the report included information on cropping practices on the application site and surrounding fields, as brent geese will feed on arable fields if they are planted with suitable crops, eg winter wheat. Therefore, brent geese use of fields is determined by the crop rotation (alongside factors such as whether bird scaring is employed, size and openness of the field, and disturbance).

If this update of the wintering bird report reveals any use of the development site by brent geese, and if an assessment concludes there may be an impact in combination with other proposals in the area, mitigation measures are available. As discussed at the meeting, if necessary, measures might include setting aside a suitable piece of land for brent goose foraging, or not employing bird scarers on a piece of arable land planted with winter wheat.

Water quality
Arun DC's HRA *Stage 2 report: Screening for likely significant effects* submitted as part of the Examination in Public of their Local Plan, identifies that developments in this location have the potential to impact the water quality of Pagham Harbour SPA/Ramsar site. Pagham waste water treatment works (WwTW) serves the Pagham area, and discharges to Pagham Rife, which feeds

into the SPA/Ramsar site. Natural England advises that you speak to the water company to determine how much headroom is available at Pagham WwTW, and whether the proposal can be accommodated.

Other Advice

Due to the potential impacts of this development on designated sites, this proposal may a require a statutory EIA under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. Further advice and confirmation should be sought from Arun District Council. Should the Council decide that an EIA is not required, Natural England requests that a detailed assessment of the potential impacts of this proposal upon the designated sites (as outlined above) is submitted with any subsequent planning application.

Protected Species
No advice has been provided on protected species. Please refer to our Standing Advice: https://www.gov.uk/guidance/protected-species-and-sites-how-to-review-planning-proposals

Further advice on European Protected Species can be found in Annex 1 below.

You should apply our Standing Advice when making you application as it is a material consideration in the determination of applications in the same way as any individual response received from Natural England following consultation.

For clarification of any points in this letter, please contact Alison Giacomelli on 0208 225 7693 or Alison.giacomelli@naturalengland.org.uk.

This letter concludes Natural England's Advice within the Quotation and Agreement dated 17 June 2016.

commercialservices@naturalengland.org.uk
As the Discretionary Advice Service is a new service, we would appreciate your feedback to help shape this service. We have attached a feedback form to this letter and would welcome any comments you might have about our service.

☒ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

Alison Giacomelli
Lead Adviser – Sustainable Development
Sussex and Kent Area Team

Cc commercialservices@naturalengland.org.uk

Annex 1
European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's 'How to get a licence' publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's guidance on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

Natural England's pre-submission Screening Service can screen application drafts prior to formal submission, whether or not the relevant planning permission is already in place. Screening will help applicants by making an assessment of whether the draft application is likely to meet licensing requirements, and, if necessary, provide specific guidance on how to address any shortfalls. The advice should help developers and ecological consultants to better manage the risks or costs they may face in having to wait until the formal submission stage after planning permission is secured, or in responding to requests for further information following an initial formal application.

The service will be available for new applications, resubmissions or modifications – depending on customer requirements. More information can be found on Natural England's website.

APPENDIX 5

Winter Waterfowl Report (Aluco, 2015)

ALUCO ECOLOGY LTD

WINTER WATERFOWL SURVEY

LAND AT SUMMER LANE, PAGHAM

MARCH 2015

Aluco Ecology Ltd Registered in England No. 5598341
info@alucoecology.co.uk www.alucoecology.co.uk
Hampshire 01962 886633 / Berkshire 01488 648321 / South-West 01326 291064
Registered Office: Pencairn, Penmenner Road, The Lizard, Cornwall TR12 7NR

ARUN DISTRICT COUNCIL P/140/16/OUT

WINTER WATERFOWL SURVEY
LAND AT SUMMER LANE, PAGHAM

1.0 INTRODUCTION

Background

1.1 This document presents survey data for winter bird survey counts during the period November 2014 -February 2015 for an area of farmland at Summer Lane, Pagham, and adjacent areas.

Site Location

1.2 The survey area consists of arable farmland, permanent pasture, and scrub. Its location is shown at **Figure 1** below.

1.3 The survey area is just over 400m from the coastal designated sites at Pagham Harbour at its closest point. These are designated for waterfowl and coastal habitats and include within 1km: Pagham Harbour Special Protection Area (SPA) and Ramsar Site, Solent Maritime and Solent & Isle of Wight Lagoons Special Areas of Conservation (SAC), Pagham Harbour Site of Special Scientific Interest (SSSI) and Farlington Marshes Local Nature Reserve (LNR). Citations for these designated sites outlining the special interest features are provided at **Technical Appendix 1.**

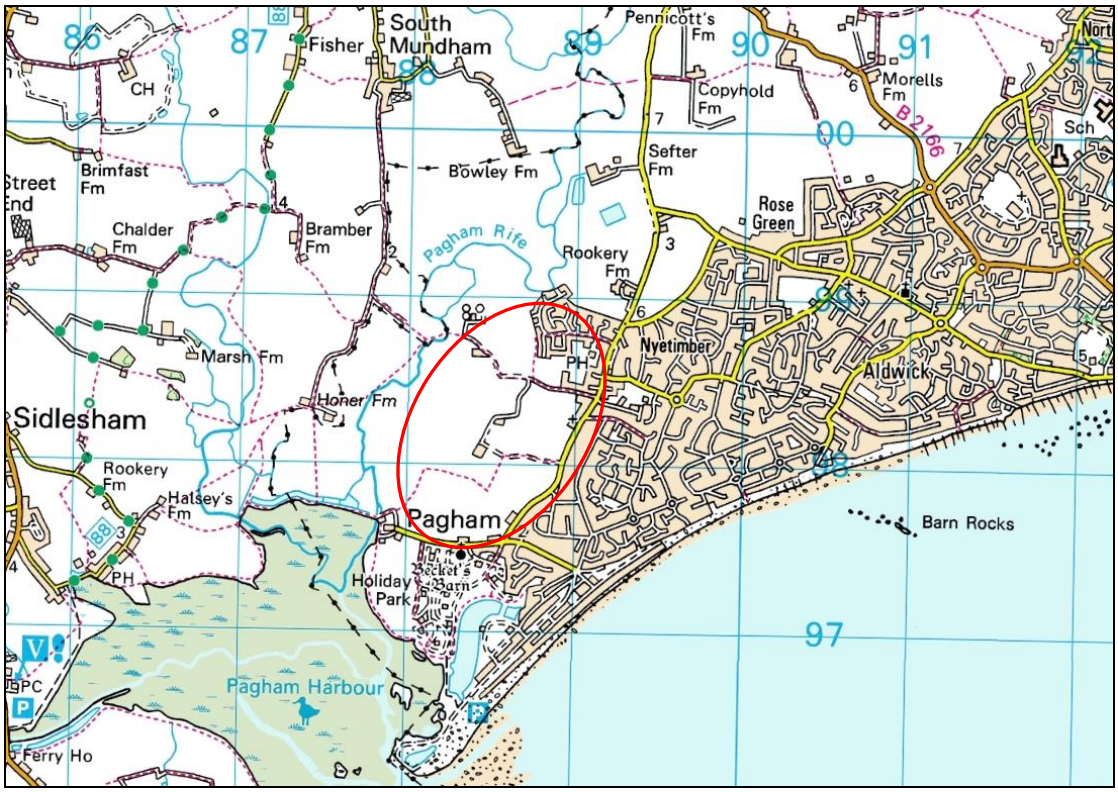

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Figure 1: Location of the Main Survey Area

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2.0 METHODOLOGY

2.1 The survey area was selected on the basis of the field network around the proposed development site (fields 1 & 2, see **Figure 2** below). All of the fields on the plateau east of the Pagham Rife valley were surveyed. Consideration was also given to fields further west of fields 5/6 and North of 5 / Rookery Farm with additional casual monitoring of these areas on the edge of the main survey block.

2.2 The survey area was scanned using binoculars and telescopes to check for any feeding or roosting waders and wildfowl. Survey work was undertaken by experienced bird surveyors. Observations of other species were sometimes recorded on an incidental basis. For each visit a note was usually made of the state of the tide and weather conditions (which might affect use by waterfowl). Visits were made during high tide and other tidal states. Public use of each area was also recorded.

2.3 The main survey area was then walked on foot, scanning all open areas to locate feeding birds. The survey area was divided into defined count areas. Area 1 and 2 are part of the proposed development location at Summer Lane. **Figure 2** shows the survey areas for winter waterfowl work during 2014/15.

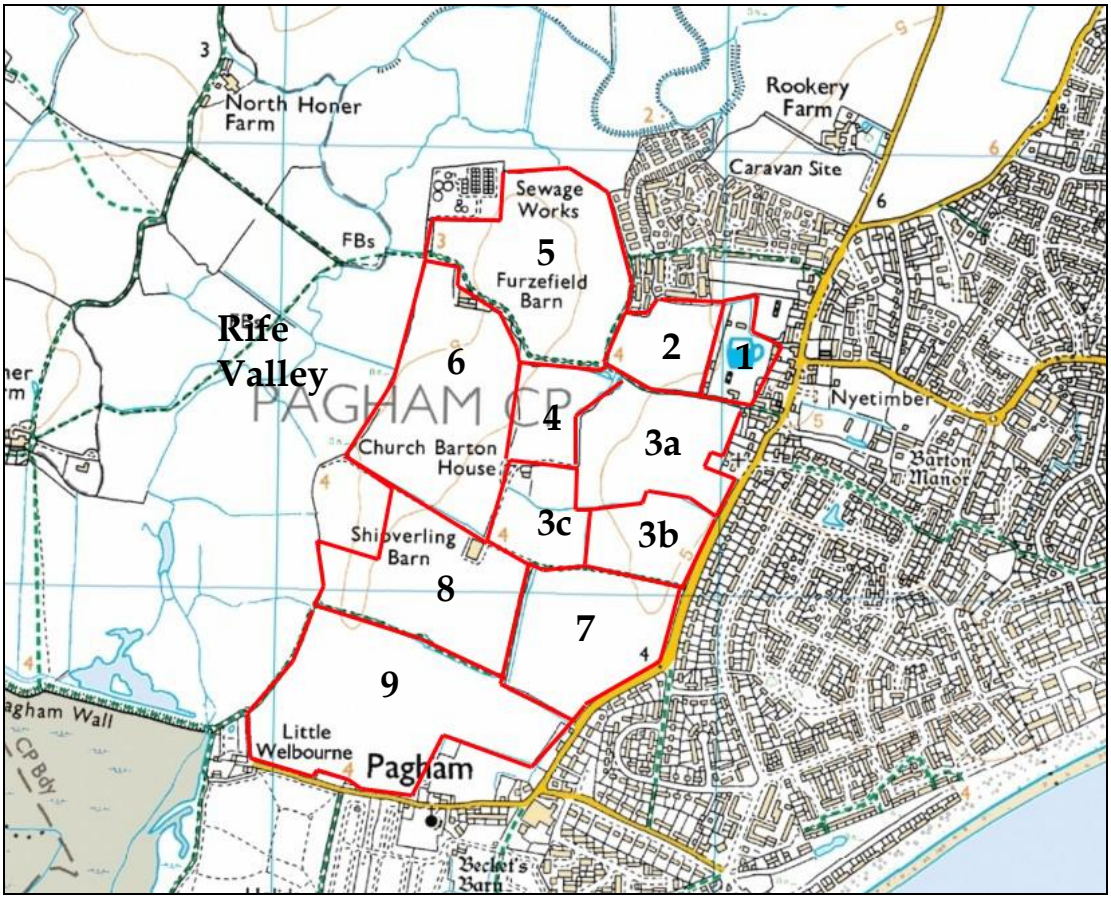

Figure 2: Count Areas for Winter Waterfowl Survey

3.0 RESULTS

Description of Count Areas

3.1 The count areas consist of farmland along Summer Lane (Areas 1-6), and areas to the south along the public rights of way (Areas 7-9) which are mostly under arable production at present with the exception of Fields 1, 3c and a very small section of the top of 6, which are horse paddocks. The arable fields were ploughed in late autumn or early winter and during the survey were mostly bare, apart from field 5 which was early growth winter wheat. Mature hedges are present around some of the fields particularly towards the centre of the count area, and others contain open ditches.

Waterfowl Records

3.2 Brent Goose *Branta bernicula* and Wader records are provided for the 1km square of the count area, but detailed locations of these records have not been provided.

3.3 The survey comprised fifteen visits carried out between the end of November 2014 and very early March 2015. Details of timing are presented at **Table 1** below.

3.4 **Table 2** below shows details of waterfowl species recorded, with **Table 3** providing a summary of other birds noted during the winter period.

3.5 The survey recorded waterfowl in Fields 5, where on two dates in early winter part of the Dark-bellied Brent Goose *Branta bernicula bernicula* flock from Pagham Harbour used the field, along with a single European White-fronted Goose *Anser albifrons albifrons* during the second date. No other waterfowl were recorded on site, or on any other dates. Waders including Eurasian Curlew *Numenius arquata* and Northern Lapwing *Vanellus vanellus* used the ploughed fields at 3b, 5, 7 and 9. This was generally in low numbers for feeding and roosting, but with a peak count of 71 in Field 7. Occasional flocks of Lapwing and Brent Geese were noted flying around the wider Rife Valley. Numbers of other waterfowl were noted in the wider Rife valley, but this is outside and to the west of the count area. No Brent Geese were recorded from the fields immediately west/north of Field 5/6 of the count area during survey work, which could be monitored from the edge of the count area.

3.6 The main survey areas at Summer Lane (Areas 1-3a) recorded no waterfowl use during the survey with the majority of records coming from field 5 as well as 3b and 7 further south. The majority of the ploughed fields were used by a number of Gulls mostly for loafing and roosting. These records are provided in **Technical Appendix 1**.

3.7 Dog walkers and walkers were recorded on every visit, usually in low numbers (see **Table 1**). The use of the footpaths heading east and west through the site was regular. Use of the wider footpath network into the Rife Valley north of Pagham harbour was much less frequent during survey visits. The use of the sea wall is also frequent.

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Table 1: Survey Dates

Date	Ob(s)	Start	End	Weather	Tides	Notes
30 Nov 2014	PM-R & JN	10:00	11:10	Sunny, cold, light wind.	LT 11:02 (1.5m)	See map and e-mail of 1st Dec for details of habitats, etc. Dog walkers - c.4 along Summer Lane, including one using path between 5 and 2; about 2 more using path between 7, 8 & 9 and the Furzefield Barn road.
7 Dec 2014	PM-R	11:10	12:10	Cloudy, threatening rain. Brisk NW wind	HT 11:37 (5.6m)	Dog walkers - 3 along Summer Lane and one using path between 5 and 2. Informed by a local that crop spraying took place on field 5 on 3 Dec 2014 and no Brent seen since.
12 Dec 2014	PM-R	09:30	10:30	Heavy rain overnight. Cloudy. Brisk W wind	LT 08:44 (1.4m)	Dog walkers - 4 along Summer Lane and 3 along road to Shipverling Barn and 1 between 8 and 9. Field 7 has been recently flattened and ploughed with very fine, shallow furrows as if ready for seeding.
19 Dec 2014	GK	09:00	10:30	Sunny, cold, light wind 7c	HT 08:49 (5m)	Dog walkers 3people and 2 dogs north footpath; 4people 3 dogs south footpath
28 Dec 2014	PM-R	12:30	13:30	Sunny, cold, light north wind.	LT 09:21 (1.0m)	Dog walkers - 2 along Summer Lane and 2 along road to Shipverling Barn and 3 between 8 and 7. A flock of 300+ Lapwing seen rising from the field immediately north of field 5 and dropping back down.
1 Jan 2015	GK	11:00	12:00	Rain clearing 6c	LT 13:56 (1.3m)	2 people 3 dogs south footpath
8 Jan 2015	PM-R	13:00	14:00	Bright sunshine after a morning of torrential rain	HT 13:07 (5.3m)	No dog walkers. 400+ Lapwing seen rising from the field immediately west of field 6 and dropping back down.
17 Jan 2015	GK	07:00	09:00	Part cloud at start with some frost, light drizzle by end. Med. Strength SW wind	HT 08:17 (4.8m)	2people and 2 dogs south path. 1 person 1 dog north path
22 Jan	GK	07:00	09:30	clear to begin, no wind 1c	LT05:46 (0.4m)	2 dog walkers along Summer Lane with 3 dogs.

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2015						
1 Feb 2015	PM-R	09:45	10:45	Cloudy with sunny spells. Bitter north wind	HT 09:38 (4.8m)	Dog walkers - 2 along Summer Lane and 2 along road to Shipverling Barn and then between 7 and 8.
5 Feb 2015	GK	11:30	15:00	clear, sunny 7c	HT12:16 (5.4m)	1 dog walker with 2 dogs summer lane, 2 dog walkers southern footpath with 2 dogs
12 Feb 2015	GK	14:00	16:00	Part cloud 6c	Ht 16:21 (4.5m)	1 Dog Walker with 1 dog Summer Lane
15 Feb 2015	PM-R	09:40	10:30	Bright sunshine. Mild 7C.	HT 07:50 (4.6m)	2 dog walkers along Summer Lane, plus a horse and rider and 3 dog walkers along road to Shipverling Barn and then between 7 & 8.
19 Feb 2015	GK	06:30	09:30	Part Cloud to light rain by end. 5c-6c SW wind	HT 11:21 (5.9m)	2 dog walkers 3 dogs on summer lane
1 Mar 2015	PM-R	11:35	12:10	Bright sunshine. Windy. Mild 10C	HT 08:20 (4.5m)	Just the one dog walker along road to Shipverling Barn

Surveyors: JN – John Norton, PM-R – Peter Milnets-Raby, GK - GarethKnass

Table 2: Waterfowl Recorded During Survey

Date	Time	Field	Species	Count	Notes
30 Nov 2014	10:10	5	Brent Goose	1086	Feeding (present 10.00=10.30 at least and settled; a few flew in during count).
30 Nov 2014	10:50	7	Curlew	26	Feeding; flew off when disturbed by Peregrine.
30 Nov 2014	10:55	3b	Lapwing	4	Roosting.
12 Dec 2014	09:36	5	Brent Goose	747	Compact feeding flock very close to boundary with field 2
12 Dec 2014	09:36	5	White-fronted Goose	1	Feeding in with Brent - a juvenile
12 Dec 2014	09:52	3b	Lapwing	8	Roosting
19 Dec 2014	09:45	7	Curlew	71	feeding
28 Dec 2014	13:40	5	Lapwing	4	Roosting
1 Jan 2015	11:35	7	Curlew	2	roosting
1 Jan 2015	11:50	9	Curlew	3	Feeding
8 Jan 2015	13:08	5	Curlew	39	Feeding
8 Jan 2015	13:35	7	Curlew	3	Feeding
1 Feb 2015	09:50	5	Curlew	8	Feeding
1 Feb 2015	10:20	3b	Lapwing	5	Roosting
12 Feb 2015	15:30	9	Curlew	2	Feeding
15 Feb 2015	10:15	3b	Lapwing	4	Roosting

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Table 3: Other Species recorded from the Count Area

Species	**Status**	**Comments**
Grey Partridge *Perdix perdix*	Red BAP	Recorded in fields 5 & 6 on two occasions. Max count 8 birds. Also noted west of site in Rife Valley.
Lapwing *Vanellus vanellus*	Red	Recorded loafing in arable fields on a few dates
Herring Gull *Larus argentatus*	Red	loafing on arable fields regularly in small numbers
Skylark *Alauda arvensis*	Red BAP	Recorded regularly in Rife Valley adjacent to the site. Occasionally noted overflying count area.
Fieldfare *Turdus pilaris*	Red	Noted flying over site on two dates
Song Thrush *Turdus philomelos*	Red, BAP	Present in count area around boundary habitats
Common Starling *Sturnus vulgaris*	Red	Present in low numbers around the residential edge of count area, occasionally using fields on site.
House Sparrow *Passer domesticus*	Red	Numerous pairs located in housing along east boundary, and along Summer Lane
Linnet *Carduelis cannabina*	Red, BAP	Recorded flying over count area, and present in Rife Valley to the west.
Yellowhammer *Emberiza citrinella*	Red	Recorded on hedgerow adjacent to sewerage works west edge of count area (field 5). Present in Rife Valley.
Brent Goose *Branta bernicula bernicula*	Amber	Recorded on two dates in Field 5.
Common Kestrel *Falco tinnunculus*	Amber	Recorded flying over.
Eurasian Curlew *Numenius arquata*	Amber	Recorded feeding on ploughed fields in count area.
Mediterranean Gull *Ichthyaetus melanocephalus*	Amber, Sch1	Recorded on two dates in Field 7
Black-headed Gull *Chroicocephalus ridibundus*	Amber	Recorded in count area.
Common Gull *Larus canus*	Amber	Recorded in count area.
Lesser Black-backed Gull *Larus fuscus graellsii*	Amber	Recorded in count area.
Great Black-backed Gull *Larus marinus*	Amber	Recorded in count area.
Green Woodpecker *Picus viridis*	Amber	Regularly seen and heard around Summer Lane area
Meadow Pipit *Anthus pratensis*	Amber	Small flocks on arable land, with max cvount of 13 in Field 7. Sometimes associating with Pied Wagtail flock.
Dunnock *Prunella modularis*	Amber	Common species around field boundaries where woody.
Goldcrest *Regulus regulus*	Amber	Recorded from boundary of Field 1
Reed Bunting *Emberiza schoeniclus*	Amber	Recorded on hedgerow adjacent to sewerage works west edge of count area (field 5). Present in Rife Valley.

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Peregrine Falcon *Falco peregrinus*	Sch1	Recorded in Field 9 on one visit.
Cetti's Warbler *Cettia cetti*	Sch1	Heard from count area at western edge – present along Pagham Rife.
Chiff Chaff *Phylloscopus collybita*	not listed	recorded on a couple of dates around sewerage works, and also present along Rife outside count area
Sparrowhawk *Accipiter nisus*	not listed	Recorded on two dates around Summer Lane area and north of count area.
Pied Wagtail *Motacilla alba yarrelli*	not listed	max count of 44 individuals in 3b on one date

Key
Sch1 = Listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)
BAP = Listed as a local or national Biodiversity Action Plan species
Red = Red Listed bird of Conservation Concern
Amber = Amber listed bird of Conservation Concern
(nb details of these category listings is provided in Eaton et al (2009))

4.0 CONCLUSIONS

4.1 A winter waterfowl survey was undertaken on farmland at Summer Lane and surrounds to the west of Pagham, during November 2014 to March 2015. The survey recorded some use of the open fields by waterfowl (wildfowl/Geese or waders).

4.2 There was no use of Fields 1, 2, 3a, 3c, 4, 6 or 8 by waterfowl. Fields 3b, 5, 7 and 9 were used by both Curlew and Lapwing, with field 5 also used on two occasions by part of the wintering flock of Brent Geese from Pagham Harbour.

4.3 The count area provides wintering habitats and opportunities for a number of birds of conservation concern. This use is part associated with Pagham Harbour and Pagham Rife valley to the west of the count area, where habitats of local to international value for bird species are present. The habitats within the count area are generally more intensively managed arable farmland.

5.0 REFERENCES

Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296–341

Sussex Biodiversity Records Centre Data Search June 2013.

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Technical Appendix 1

Coastal Designated Sites
Within 1km of the Survey Area

SPA description

(information as published 2001)

Pagham Harbour

Country	England
Unitary Authority	West Sussex
SPA status	Classified 30/03/1988
Latitude	50 45 48 N
Longitude	00 45 38 W
SPA EU code	UK9012041
Area (ha)	636.68
Component SSSI/ASSIs	Pagham Harbour

Pagham Harbour is located on the south coast of England in West Sussex. It is an estuarine basin that comprises an extensive central area of saltmarsh and intertidal mud-flats, surrounded by lagoons, shingle, open water, reed swamp and wet permanent grassland. The mud-flats are rich in invertebrates and algae, and provide important feeding areas for birds. The lower saltmarsh is dominated by Common Cord-grass *Spartina anglica,* with patches of Glasswort *Salicornia* spp. The area supports breeding Little Tern *Sterna albifrons* in summer, as well as wintering concentrations of Ruff *Philomachus pugnax* and Pintail *Anas acuta*.

Qualifying species

For individual species accounts visit the Species Accounts section

This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

Little Tern *Sterna albifrons*, 12 pairs representing 0.5% of the breeding population in Great Britain (Count as at 1995)

Over winter;

Ruff *Philomachus pugnax*, 160 individuals representing at least 22.9% of the wintering population in Great Britain

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

Over winter;

Pintail *Anas acuta*, 628 individuals representing at least 1.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Note:

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

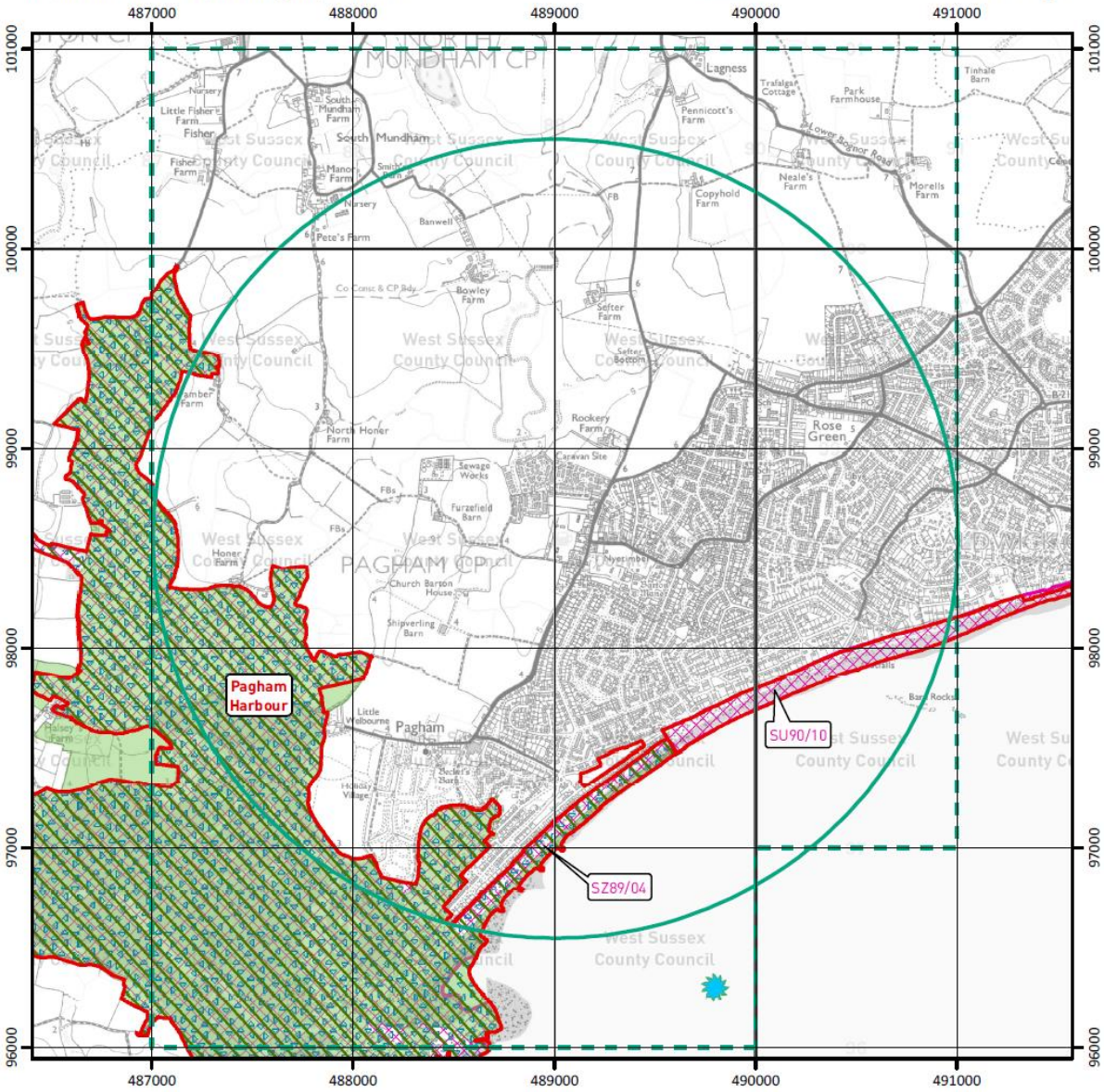
Note that sites selected for waterbird species on the basis of their occurrence in the breeding, passage or winter periods also provide legal protection for these species when they occur at other times of the year.

Designated Site Map (ESD/13/350)

Land at Summer Lane, Pagham + 2km radius

Prepared for Gareth Knass (Aluco Ecology Ltd) - 27/06/2013

Sussex Biodiversity Record Centre
Woods Mill, Henfield,
West Sussex BN5 9SD
sxbrc@sussexwt.org.uk
01273 497 558/557
www.sxbrc.org.uk



0 1 2 Km

N

Key to Map:

- Enquiry area
- Species search area
- LGS
- LNR
- Marine SNCI
- Ramsar
- SPA
- SSSI

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SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

Site Name:	**Pagham Harbour**		
County:	West Sussex		
District:	Chichester, Arun		
Local Planning Authority:	Chichester District Council, Arun District Council		
Size:	615.9 hectares (1521.9 acres)		
National Grid Ref:	SZ875970		
Date Notified (Under 1949 Act):	1954	**Date of last revision:**	1980
Date Notified (Under 1981 Act):	1986	**Date of last revision:**	-

Other Information: This site lies within the South Coast Plain. Pagham Harbour is a proposed NCR site. This site contains Pagham Harbour GCR site and part of Bognor Regis (Palaeobotany) GCR site. This is also a proposed Ramsar/SPA site.

Reason for Notification

This site comprises an extensive central area of salt-marsh and tidal mudflats with surrounding habitats including shingle, open water, reed swamp and wet permanent grassland. Pagham Harbour is of national importance for wintering wildfowl and waders and also for breeding birds both within the Harbour and the surrounding grazing pasture. The site supports nationally important communities of plants and invertebrates.

Pagham Harbour was reclaimed for agriculture in the late nineteenth century but was flooded again by a storm in the early twentieth century. The extensive intertidal mudflats are rich in algae and invertebrates and provide important feeding areas for birds.

Salt-marsh is a habitat threatened nationally through reclamation for agriculture.The lower part of the salt-marsh is dominated by the hybrid common cord-grass *Spartina anglica* with patches of the glassworts *Salicornia* spp. Above this zone sea-purslane *Halimione portulacoides* covers large areas with other species such as sea aster *Aster tripolium* in the periphery. At one part of the site within a mixed salt-marsh community greater sea-spurrey *Spergularia media* and sea lavender *Limonium vulgare* are found.The upper margin of the salt-marsh has developed a narrow strip of grassland dominated by sea couch *Elymus pycnanthus*.

Vegetated shingle is a nationally rare community. At Pagham, the type and extent of plant cover is dictated by the shifting nature of the substrates, the sea defence works, and by its relative exposure to the elements. In sheltered areas a diverse grass sward has developed with herbs such as early forget-me-not *Myosotis ramosissima*, biting stonecrop *Sedum acre* and the nationally endangered childing pink *Petrorhagia nanteuilli*. This contrasts with the sparse vegetation of the shingle ridge where the uncommon sea-kale *Crambe maritime* and yellow-vetch *Vicia lutea* are found.

Pagham Harbour has a wide variety of wetland habitats. Brackish drainage ditches dissect the land where common reed *Phragmites australis* dominates. This forms fairly extensive swamps in some areas including the Severals to the west of the Harbour which are important for breeding and migrating reed and sedge warblers. Sidlesham ferry to the north-west provides high water feeding and roosting areas for waders while Pagham Lagoon in the east is a stormy weather sheltering site for sea duck. Here may also be found the nationally endangered starlet sea anemone *Nematostella vectensis*.

The small amount of woodland at Pagham Harbour is dominated by willow and oak. One of these areas supports a small heronry. In contrast, the ancient woodland at Norton Priory is drier with oak standards and a rich ground flora. Scrub is found both in the form of hedges and as more extensive patches with hawthorn *Crataegus monogyna* and gorse *Ulex europaeus* being the main constituents. The damp unimproved grassland surrounding the Harbour is used as a major wader roost and is grazed by large numbers of Brent Geese. Some fields of improved grassland are included in the site as they too, support nationally important populations of birds.

Pagham Harbour is an overwintering area for over 120 species of bird. The numbers of wintering pintail,

ringed and grey plover and black-tailed godwit regularly reach 1% of British populations and the site is of international importance for wintering ruff and Brent Geese. The mudflats also provide food for a diverse breeding community of birds including oystercatcher, shelduck and redshank.

Notable invertebrates include the sand dart *Agrotis ripae*, Matthew's wainscot moth *Mythimna favicolor* and the long-winged conehead grasshopper *Conocephalus discolor*.

Geology

Pagham Harbour is a key site for coastal geomorphology. It is significant both as a classic shingle spit landform and for the links that have been demonstrated between the coastal near shore and offshore forms and sediments. The shingle spit system comprises a series of sub-parallel ridges and recurves, marking different phases of extension and frontal accretion. Shingle reaches the beach *via* the intertidal zone, and the so-called "Pagham delta" and the behaviour of the spits and delta are intimately linked with water and sediment circulation around the Selsey peninsula. The area also provides an excellent example of the role of weed rafting of shingle in coastal sediment budgets.

This site also includes, at the north-eastern end, part of a key site for plant fossils from the London Clay (divisions B_1 and B_2). It is the only locality in the Hampshire Basin to yield abundant London Clay plants and the only site known to have yielded plants from the B_2 division of this formation. The site has yielded examples of some one hundred and thirty species (representing seventy families), including numerous type specimens. Dominant families include the Vitaceae, Menispermaceae and Burseraceae. The genera *Bognoria* and *Aldwichia* are only found here, as are some thirty species. An outstanding palaeobotanical site of great importance to studies of Tertiary floras.

COUNTY: WEST SUSSEX SITE NAME: BOGNOR REEF

DISTRICT: ARUN

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: ARUN DISTRICT COUNCIL

National Grid Reference: SZ 912982 Area: 64.4 (ha.) 159.1 (ac.)

Ordnance Survey Sheet 1:50,000: 197 1:10,000: SZ 99 NW, SZ 89 NE

Date Notified (Under 1949 Act): 1980 Date of Last Revision: –

Date Notified (Under 1981 Act): 1988 Date of Last Revision: –

Other Information:
This site will be listed in 'A Geological Conservation Review'.

Reasons for Notification:
This site comprises a long stretch of foreshore of great geological interest and an extensive area of vegetated shingle, a habitat type which is rare in Britain. At the western end is a small area of old sand dune with an interesting flora including a specially protected species listed on Schedule 8 of the Wildlife and Countryside Act 1981.

Biological Interest
The shingle strip which runs along the beach at Bognor develops into an extensive shingle beach west of SZ 915982. In the shelter of the main bank shingle plant communities have developed, typically with yellow horned poppy *Glaucium flavum*, sea beet *Beta vulgaris*, and the uncommon sea kale *Crambe maritima*. Small grassy patches occur infrequently, with false oat-grass *Arrhenatherum elatius* and red fescue *Festuca rubra*.

The small outlying area of sand dune at The Green is all that remains of a once much more extensive dune system. The grassland, scrub and small marsh support a number of interesting plants and invertebrates including the long-winged conehead grasshopper *Conocephalus discolor* and the nationally endangered childing pink *Petrorhagia nanteulii.*

Geological Interest
The foreshore here is one of the few places where the whole thickness of the London Clay can be studied in sequence, although favourable tides occur infrequently and some exposures remain constantly under water. Most of the rocks are clays or sands but there are two sequences of more resistant rocks: calcareous sandstones which form the main Bognor Reef and glauconitic sandstones which comprise the less substantial Barn Rocks to the west. The fossil flora and fauna of these beds is outstanding.

The site is a key site for plant fossils from the London Clay (divisions B_1 and B_2) and is of great importance to the study of Tertiary floras. It is the only locality in the Hampshire Basin to yield abundant London Clay plants and the only site known to have yielded plants from the B_2 division of this formation. The site has yielded examples of some one hundred and thirty species (representing seventy families), including numerous type specimens. Dominant families include the Vitaceae, Menispermaceae and Burseraceae. The genera *Bognoria* and *Aldwichia* are found only here, as are some thirty species. An outstanding palaeobotanical site of great importance to studies of Tertiary floras.

The eastern foreshore is a valuable site which has yielded a diverse Lower Eocene avifauna, including a significant number of small species which are only rarely preserved. Seven

species (representing seven orders) have been recorded from the site. For five species this is the type locality. Three orders, the Charadriiformes, Columbiformes and Apodiformes, are unique to Great Britain at this time.

Finally the most important site in the world for pyritised fossil insects (especially beetles) is on the foreshore at Aldwick. This mode of fossilisation preserves insects uncrushed and they can be extracted simply by sieving. The insects are allochthonous, being derived from the land and associated with a marine fauna (of Lower Eocene age) after death. One species of beetle belongs to a genus, *Pactopus*, now confined to western North America, and otherwise unknown in a fossil state. Other beetles include representatives of modern tropical genera, as well as the earliest known members of the families Eucnemidae and Anobiidae.

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APPENDIX 6

Wintering Bird Survey Report (Ecology Solutions, 2018)

ecology solutions ltd

HANBURY (PM) LTD

PAGHAM SOUTH

[REVISED APPLICATION]

Wintering Bird Survey Report

(Winter 2017/18)

May 2018
5633.WBR.2018.vf

ecology solutions for planners and developers

ARUN DISTRICT COUNCIL P/140/16/OUT

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1. INTRODUCTION

1.1. Background

1.1.1. Ecology Solutions was commissioned by Hanbury (PM) Ltd to undertake wintering bird survey work pursuant to the production of documentation in support of a planning application to be submitted in respect of Pagham South, West Sussex.

1.1.2. Development Proposals for the Application Site are for the provision of residential development (up to 400 units) along with public open space, retail and community provisions (including a primary school) associated landscape and biodiversity measures and access.

1.2. Site Characteristics and Survey Area

1.2.1. The Application Site is 22.97ha in size and is located at the western settlement boundary of Pagham, to the immediate south of Summer Lane. The surrounding landscape is dominated by existing residential development to the north, south and east. To the west, south west and north-west lies land under arable cultivation. To the immediate east lies Pagham Road.

1.2.2. The Application Site itself comprises arable land bounded by hedgerows and drainage ditches.

1.2.3. In addition to the application site itself, a wider area, including the intermediate area between the application site and the nearby Pagham Harbour Special Protection Area (SPA) was also subject to survey. The application site boundary and survey area are shown on the attached Plan ECO1.

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2. SURVEY METHODOLOGY

2.1. Field Survey

2.1.1. The survey methodology is described in detail below, including the timing and geographical scope of the surveys and other considerations.

2.2. Survey Technique

2.2.1. The survey methodology adopted, given the size of the study area, was based around a transect and vantage point survey methodology with reference to the Common Bird Census (CBC)[1] and BTO/RSPB guidelines[2]. Given the nature of the site and its surroundings (fields separated by ditches and hedgerows), it is considered that this methodology is the most appropriate and allowed an accurate count of the wintering birds present within the survey area. All surveyors involved with the survey work were familiar with the methodologies set out by the CBC.

2.2.2. Transect routes and vantage points were chosen prior to undertaking the survey so as to observe the entire area which was to be surveyed. Transects were chosen in order to ensure adequate coverage of the survey area and in order to reduce the likelihood of disturbing birds when moving through the survey area.

2.2.3. The surveyors walked the chosen transects, with occasional stops at suitable vantage points, and recorded the following information using arrange of high quality optics including binoculars and scopes where appropriate:

- Maximum count of each species of bird recorded on the ground;
- Record any notable movements of birds recorded (also identified on a map);
- Details regarding weather conditions, including cloud cover, temperature and wind speed/direction.

2.2.4. Care was taken to avoid conducting transects in the same order during subsequent visits.

2.2.5. Surveys were undertaken during suitable weather conditions; specifically good visibility and light winds. Surveys were avoided where light levels are low, visibility is considered to be poor or there were high winds.

2.3. Timing

2.3.1. Surveys were typically undertaken from dawn onwards, where this appropriately covered high tide, alternatively surveys were undertaken during hours leading up to and following high tide at various times of day.

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[1] *Bird Census Techniques*: Second Edition, Bibbey et al., 2000.
[2] *Bird Monitoring methods: A manual of techniques for key UK species*, Gilbert et al., 1998.

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2.3.2. Surveys were conducted twice a month across the winter period 2017/2018 (December to February) with single visits undertaken in November and March.

2.3.3. The dates and times of surveys and the weather conditions, in addition to the Pagham high tide times are shown below in Table 1.

Survey Dates	Survey Time	Weather Conditions	Pagham High Tide Time
30.11.17	07:20-10:15	0ºC, 0% Cloud Cover, Light Breeze, Dry	09:10
13.12.17	08:00-10:45	4ºC, 100% Cloud Cover, Light to Moderate Breeze, Drizzle	08:36
20.12.17	10:11-13:30	8ºC, 100% Cloud Cover, Light Breeze, Light Fog (Visibility to 1000m)	13:18
17.01.18	10:35-12:50	6ºC, 40% Cloud Cover, Moderate Breeze, Dry	12:29
26.01.18	08:35-11:40	5ºC, 40% Cloud Cover, Still, Dry	06:29
15.02.18	10:15-12:45	6ºC, 5% Cloud Cover, Still, Dry	12:07
22.02.18	06:30-09:50	3ºC, 30% Cloud Cover, Still, Dry	09:47
20.03.18	08:20-10:30	2ºC, 100% Cloud Cover, Still, Dry	14:00

Table 1. Survey dates, times, weather conditions and Pagham high tide time.

2.4. Geographical Scope

2.4.1. The geographical scope of the surveys is illustrated on Plan ECO1 and discussed below. Fields within the study area have been numbered on Plan ECO1 with survey results referenced against these field numbers below.

2.4.2. Wintering bird surveys associated with the proposed development were undertaken across the study area shown on Plan ECO1. This encompassed the Application site (including the development footprint) in addition to a wider study area including for areas of land which lie intermediate between the application site and the nearby Pagham Harbour SPA in order to provide comprehensive coverage of the site and local area.

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3. SURVEY RESULTS

3.1. The weather conditions during all of the survey visits were appropriate for undertaking wintering bird surveys. It is important to note that the weather varied between surveys and often influenced the extent of visibility achievable over the survey area, however it is considered that the vantage point selection ensured appropriate coverage of the entire survey area at each visit, despite conditions such as light mist on some occasions.

3.2. Habitats supported within the study area were largely comprised of ploughed arable land during the winter period 2017/18, this included fields 2, 3a, b and c, 4, 5, 6, 7, 8, 9, 13, 14 and 15. Fields 11 and 12 supported *brassica* stubbles during the survey period while Field 10 supported areas of rough grassland and grazed pasture, reed bed and waterbodies, and lies adjacent to the north sea wall of the Pagham Harbour SPA. Other habitats within the study area include a small reservoir, gardens, wet ditches, hedgerows and treelines. Detailed descriptions of habitats present within the Application Site boundary have been included within the Ecological Assessment, also produced by Ecology Solutions, to which this document has been appended.

3.3. Notable populations of birds, including wader species and Brent Geese *Branta bernicla bernicla* recorded within the study area during the survey visits are mapped on Plan ECO2.

3.4. Survey results at each visit are discussed below.

November 2017

Survey 1: 30th November 2017, 07:20-10:15

3.5. The first survey recorded 12 Brent Geese flying over Field 8 in the direction of Pagham Harbour. Further flocks of 62, 27 and six were also recorded outside the study area to the west.

3.6. Fourteen Lapwing *Vanellus vanellus* were recorded flying over Field 5, whilst a further 10 Lapwing were recorded foraging within Field 5. 25 Lapwing were recorded flying over Field 10, whilst a single Lapwing was recorded flying over Field 9. 11 Curlew *Numenius arquata* were recorded flying to and from the reservoir within the site, with a single Curlew recorded flying over Field 6. Five Snipe *Gallinago gallinago* were recorded foraging in Field 11 and a single Snipe was recorded in a wet ditch at the north-west corner of Field 14.

December 2017

Survey 2: 13th December 2017, 08:00-10:45

3.7. During the survey carried out on 13/12/17, 13 Brent Geese were recorded flying over Field 5. No further Brent Geese were recorded within or outside of the study area during this visit.

3.8. Twenty five Lapwing were recorded foraging in Field 5, with 2 flocks of approximately 200 birds recorded flying over Field 13 and the reservoir.

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Further records of Lapwing included two flying over Field 3a, flocks of 31 and 9 flying off-site adjacent to Field 15, and flocks of 150, 140 and 3 flying over the western fields within the study area.

3.9. Fourteen Curlew were recorded foraging in Field 3c, with further individual Curlew recorded in fields 10 and 11. A small flock of Curlew (12 birds) were also recorded foraging within Field 7. Two flocks of Redshank were also recorded, one along the banks of the reservoir (14 birds) and another flying over Field 10.

Survey 3: 20th December 2017, 10:11-13:30

3.10. No Brent Geese were recorded within or adjacent to the study area during this visit.

3.11. Fifteen Curlew were recorded foraging in Field 3c. 3 Lapwing were recorded foraging in Field 5. Large wader flocks were recorded in both Field 6 (approximately 1000 Lapwing and 80 Redshank *Tringa totanus*) and Field 8 (approximately 500 Lapwing, 150 Golden Plover *Pluvialis apricaria* and 50 Redshank). A small flock of Curlew (8 birds) was also recorded foraging within Field 9, with further records limited to a single Curlew at the western study area boundary, two Lapwing and 10 Redshank in Field 10 and 2 Snipe in Field 11.

January 2018

Survey 4: 17th January 2018, 10:35-12:50

3.12. Two Brent Geese were recorded foraging in Field 11 with a further two recorded as flying over Field 12. A flock of Brent Geese (approximately 250 birds) was also recorded to the west of the study area, over the SPA.

3.13. Single Lapwing were recorded foraging in Fields 10 and 5, with a further four recorded flying over Field 8. Two Curlew were recorded foraging near the reservoir. Two Snipe were also recorded within Field 10.

Survey 5: 26th January 2018, 08:35-11:40

3.14. A small flock of Brent Geese were recorded flying over Field 9 (11 birds). A flock of approximately 210 Brent Geese was also recorded flying to the west of the study area, over the SPA.

3.15. Two Curlew were recorded foraging within Field 7 with a further bird recorded as a flyover. A Single Lapwing was also recorded along the eastern boundary of Field 7. A small flock of Lapwing (13 birds) was recorded foraging in Field 9, with further flocks of 13 and 115 recorded foraging in Fields 12 and 13 respectively. A single Oystercatcher *Haematopus ostralegus* was also recorded flying over Field 12.

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February 2018

Survey 6: 15th February 2018, 10:15-12:45

3.16. No Brent Geese were recorded within the study area during this visit however a large flock of approximately 1000 birds was recorded flying above the SPA to the west of the study area.

3.17. Wader records during this visit were limited to two Snipe which were recorded flying over Field 10.

Survey 7: 22nd February 2018, 06:30-09:50

3.18. No Brent Geese were recorded within or adjacent to the study area during this visit.

3.19. Small flocks of Curlew were recorded foraging in Field 7 (4 birds), Field 3c (7 birds), and beside the reservoir (14 birds). A single Curlew was recorded foraging in Field 10 with further birds recorded as flyovers (Field 10 and 9). Flocks of Lapwing were also recorded foraging in Field 5 (100 birds) and Field 12 (12 birds). Two Snipe were also recorded in Field 11.

March 2018

Survey 8: 20th March 2018, 08:20-10:30

3.20. No Brent Geese were recorded within or adjacent to the study area during this visit.

3.21. Wader records were limited to a single Curlew recorded foraging in Field 13.

Previous Surveys

3.22. Wintering bird surveys of the application site and surrounding area were undertaken by Aluco Ecology between November 2014 and March 2015. These surveys utilised a similar methodology to that outlined above.

3.23. These surveys did not record the presence of any number of waterfowl or wader species during this period.

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4. SUMMARY

4.1. The Application Site and a wider study, encompassing land between the application site and the nearby Pagham Harbour SPA, was subject to a suite of wintering bird surveys between November 2017 and March 2018.

4.2. These surveys, in addition to those conducted by Aluco Ecology in 2014/15 indicate that the Application Site is unlikely to be of any significance for waterfowl or waders with recorded use limited to occasional foraging by low numbers of Curlew and Lapwing.

4.3. Areas of the wider study area, including those fields adjacent to the SPA, were recorded to support greater opportunities for foraging waterfowl and waders.

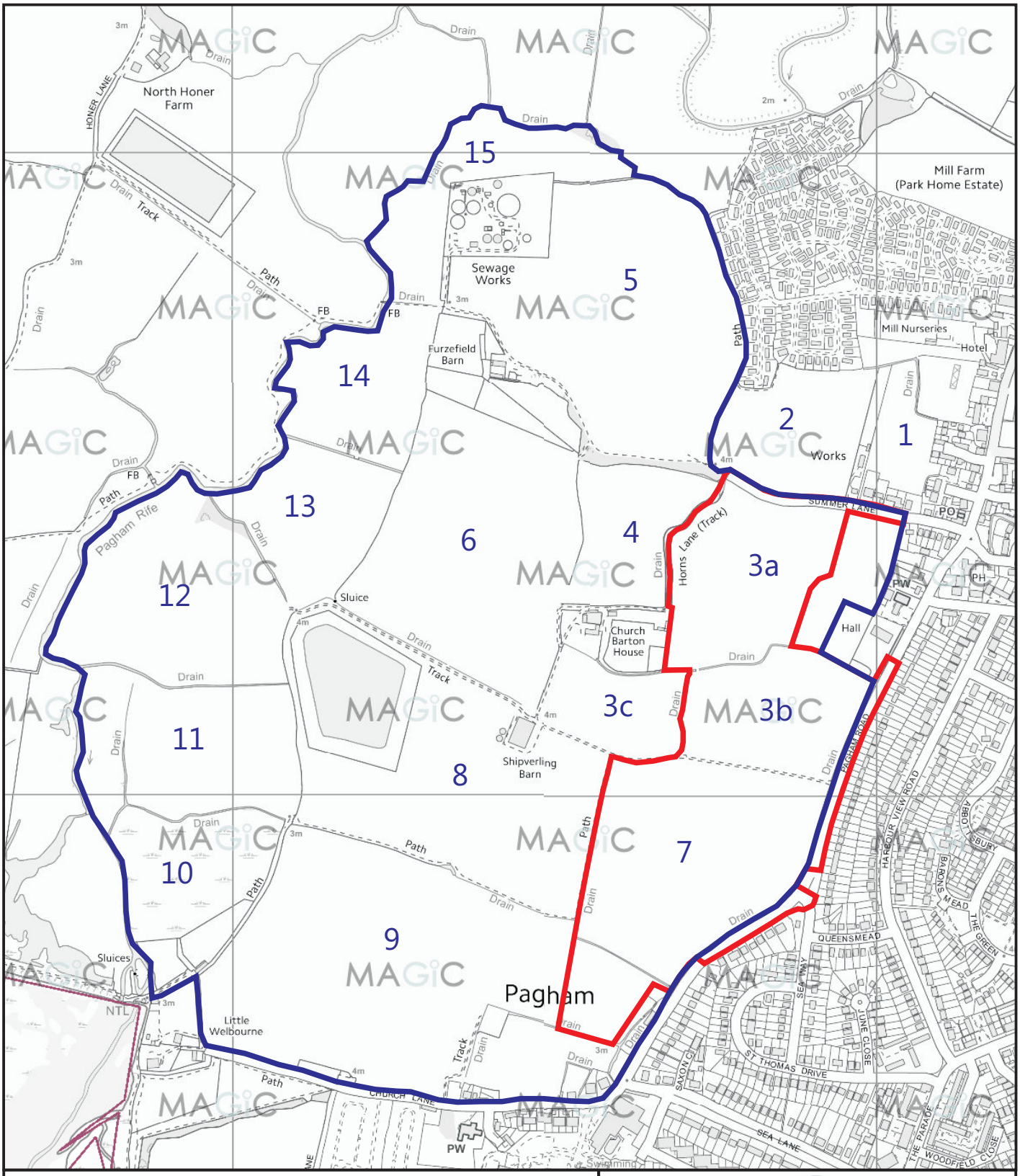
4.4. Other birds recorded within the wider survey area were small flocks of wintering Thrushes and relatively large numbers of Goldfinch *Carduelis carduelis*, Linnet *Linaria cannabina* and several Reed Bunting *Emberiza schoeniclus*, in addition to a number of occasional raptors including Kestrel *Falco tinnunculus*, Sparrowhawk *Accipiter nisus,* Peregrine *Falco peregrinus* and Marsh Harrier *Circus aeruginosus.*

4.5. A number of gull, corvid and Wood Pigeon *Columba palumbus* flocks were also recorded flying over the wider study area during each of the visits.

PLANS

PLAN ECO1

Wintering Bird Survey 2017/18 Study Area



KEY:

APPLICATION SITE BOUNDARY

STUDY AREA BOUNDARY

N

ecology solutions ltd

5633: PAGHAM SOUTH

PLAN ECO1: WINTERING BIRD SURVEY 2017/18 STUDY AREA

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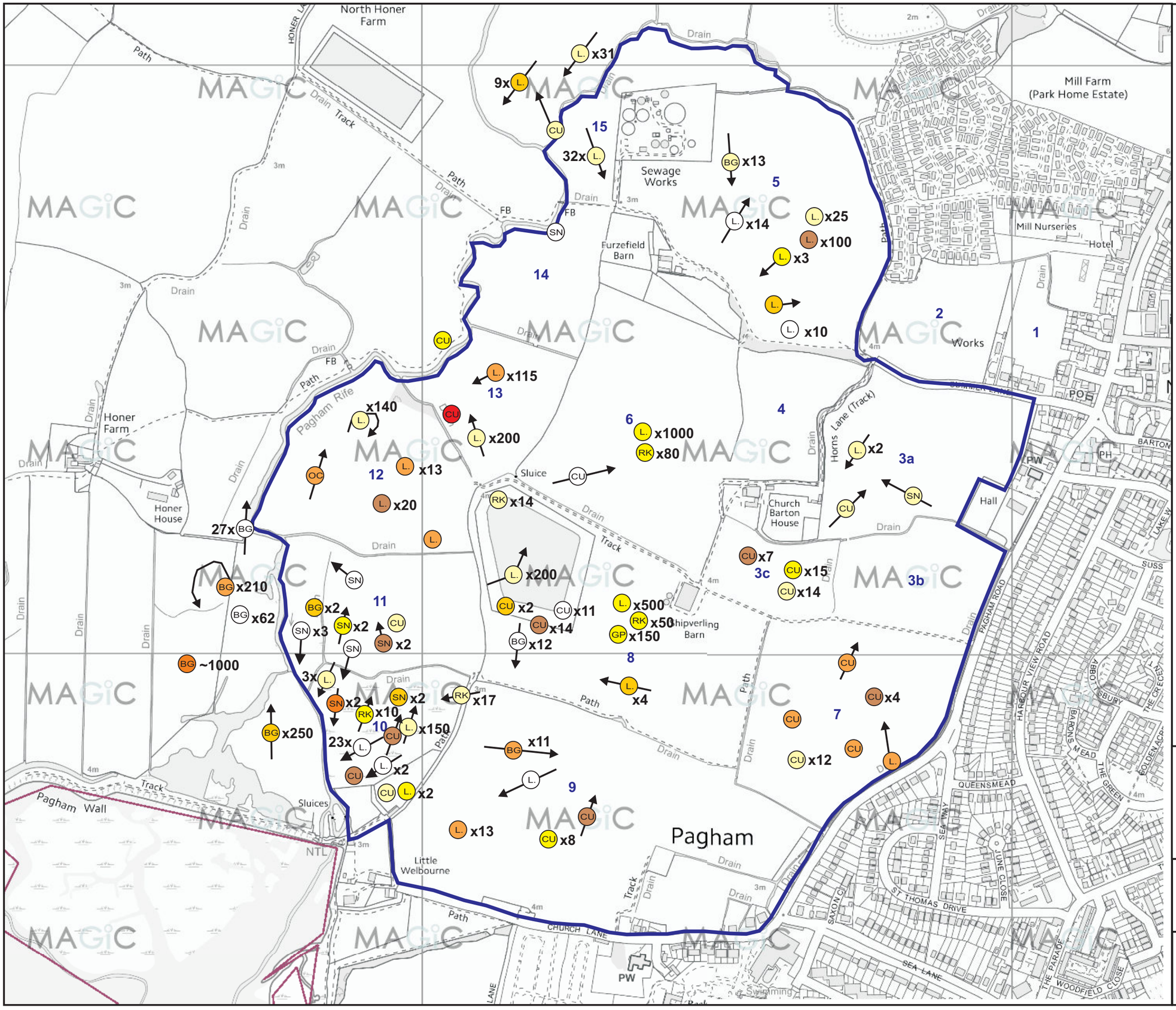
PLAN ECO2

Wintering Bird Survey 2017/18 Notable Findings



KEY:

- BOUNDARY OF THE STUDY AREA
- BRENT GOOSE (Dark Bellied)
- CURLEW
- LAPWING
- SNIPE
- REDSHANK
- GOLDEN PLOVER
- OYSTERCATCHER

- BIRD LOCATION (SURVEY ONE)
- BIRD LOCATION (SURVEY TWO)
- BIRD LOCATION (SURVEY THREE)
- BIRD LOCATION (SURVEY FOUR)
- BIRD LOCATION (SURVEY FIVE)
- BIRD LOCATION (SURVEY SIX)
- BIRD LOCATION (SURVEY SEVEN)
- BIRD LOCATION (SURVEY EIGHT)

N

ecology solutions ltd

5633: PAGHAM SOUTH

PLAN ECO2: WINTERING BIRD SURVEY 2017/18 NOTABLE FINDINGS

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APPENDIX 7

Pre-existing Dark-bellied Brent Geese baseline information

Technical Appendix 2

Records of Gulls

Date	Time	Area	Species	No.
30 Nov 2014	10:55	9	Great Black-backed Gull	21
7 Dec 2014	11:45	9	Great Black-backed Gull	59
7 Dec 2014	11:45	9	Herring Gull	14
12 Dec 2014	09:55	7	Black-headed Gull	72
12 Dec 2014	10:10	9	Great Black-backed Gull	21
12 Dec 2014	10:10	9	Herring Gull	17
19 Dec 2014	09:10	5	Black-headed Gull	23
19 Dec 2014	09:45	7	Black-headed Gull	65
19 Dec 2014	09:45	7	Herring Gull	12
19 Dec 2014	09:45	7	Great Black-backed Gull	1
19 Dec 2014	09:45	7	Mediterranean Gull	1
28 Dec 2014	13:55	7	Great Black-backed Gull	22
28 Dec 2014	13:55	7	Herring Gull	31
1 Jan 2015	11:10	5	Black-headed Gull	13
1 Jan 2015	11:35	7	Black-headed Gull	75
1 Jan 2015	11:35	7	Common Gull	2
1 Jan 2015	11:35	7	Great-black Backed Gull	19
1 Jan 2015	11:35	7	Herring Gul	22
1 Jan 2015	11:50	9	Herring Gull	5
8 Jan 2015	13:08	5	Great Black-backed Gull	9
8 Jan 2015	13:08	5	Mediterranean Gull	1
8 Jan 2015	13:08	5	Black-headed Gull	32
8 Jan 2015	13:08	5	Common Gull	1
8 Jan 2015	13:35	7	Great Black-backed Gull	59
8 Jan 2015	13:35	7	Herring Gull	22
17 Jan 2015	08:00	7	Herring Gull	2
17 Jan 2015	08:00	7	Black-headed Gull	7
17 Jan 2015	08:15	3b	Black-headed Gull	8
17 Jan 2015	08:15	3a	Black-headed Gull	5
17 Jan 2015	08:30	5	Black-headed Gull	2
17 Jan 2015	08:50	2	Black-headed Gull	3
17 Jan 2015	08:50	2	Common Gull	1
22 Jan 2015	09:00	2	Herring Gull	2
22 Jan 2015	07:30	4	Herring Gull	1
22 Jan 2015	09:00	5	Black-headed Gull	2
22 Sep 2015	08:00	9	Black-headed Gull	3
1 Feb 2015	10:35	7	Great Black-backed Gull	6
1 Feb 2015	10:35	7	Herring Gull	3

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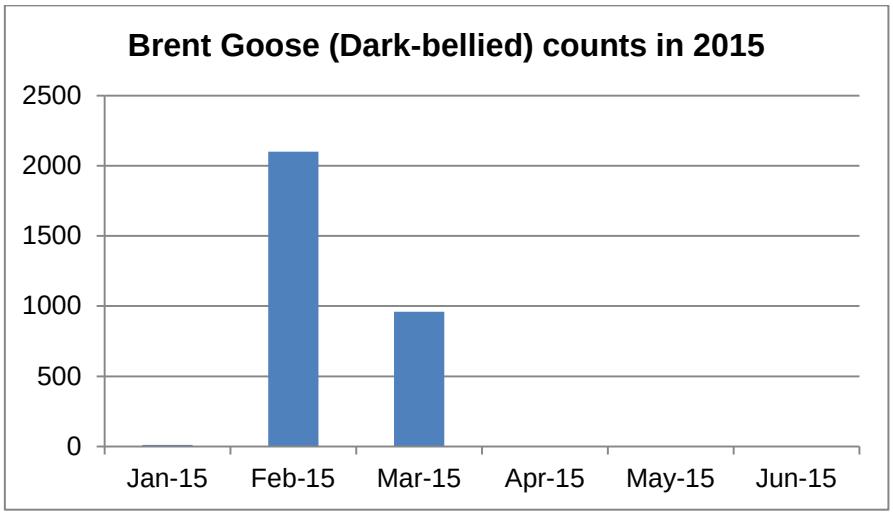
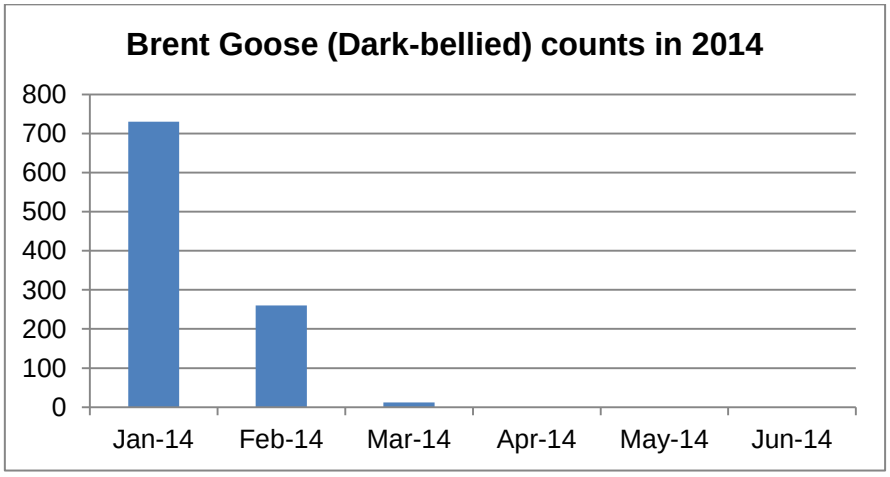
1 Feb 2015	10:35	7	Common Gull	1
5 Feb 2015	11:45	2	Black-headed Gull	13
5 Feb 2015	11:50	3a	Herring Gull	4
5 Feb 2015	11:50	3a	Black-headed Gull	3
5 Feb 2015	12:00	5	Herring Gull	2
5 Feb 2015	14:35	7	Herring Gull	3
5 Feb 2015	14:35	7	Black-headed Gull	4
5 Feb 2015	14:20	9	Black-headed Gull	7
12 Feb 2015	14:50	7	Great Black-backed Gull	4
15 Feb 2015	10:10	7	Great Black-backed Gull	2
19 Feb 2015	06:50	5	Herring Gull	3
19 Feb 2015	09:00	9	Herring Gull	2
19 Feb 2015	09:00	3b	Black-headed Gull	7

Appendix 7: Brent Geese data based on WeBS count information

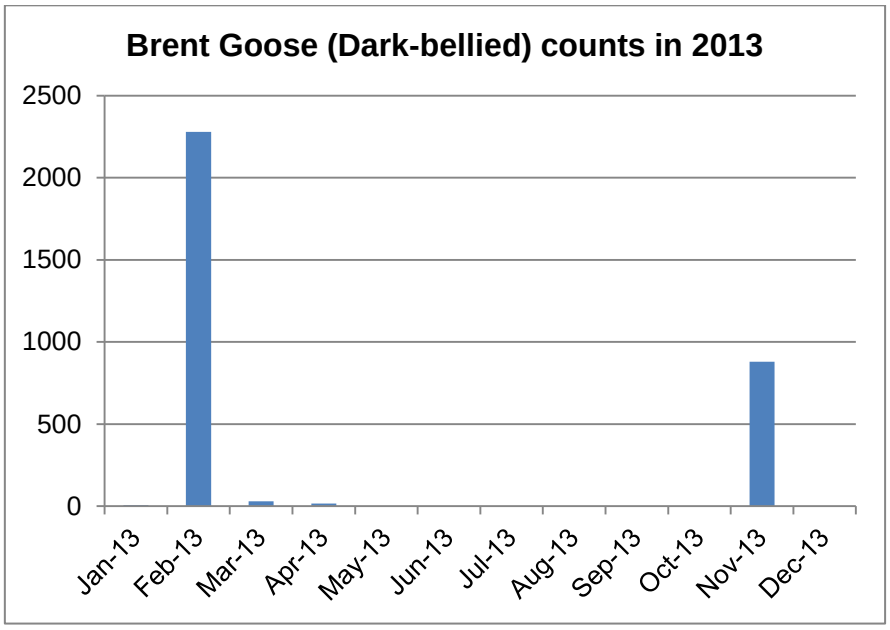
Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Jun-15	0
DB	Brent Goose (Dark-bellied)	Apr-15	1
DB	Brent Goose (Dark-bellied)	Mar-15	960
DB	Brent Goose (Dark-bellied)	Feb-15	2100
DB	Brent Goose (Dark-bellied)	Jan-15	12
DB	Brent Goose (Dark-bellied)		



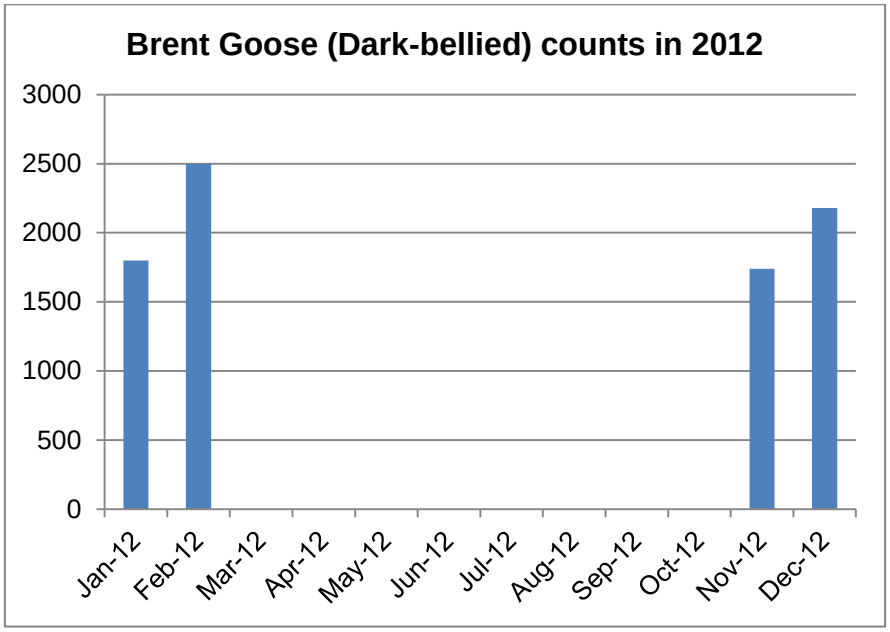
Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Jun-14	0
DB	Brent Goose (Dark-bellied)	May-14	0
DB	Brent Goose (Dark-bellied)	Apr-14	0
DB	Brent Goose (Dark-bellied)	Mar-14	12
DB	Brent Goose (Dark-bellied)	Feb-14	260
DB	Brent Goose (Dark-bellied)	Jan-14	730



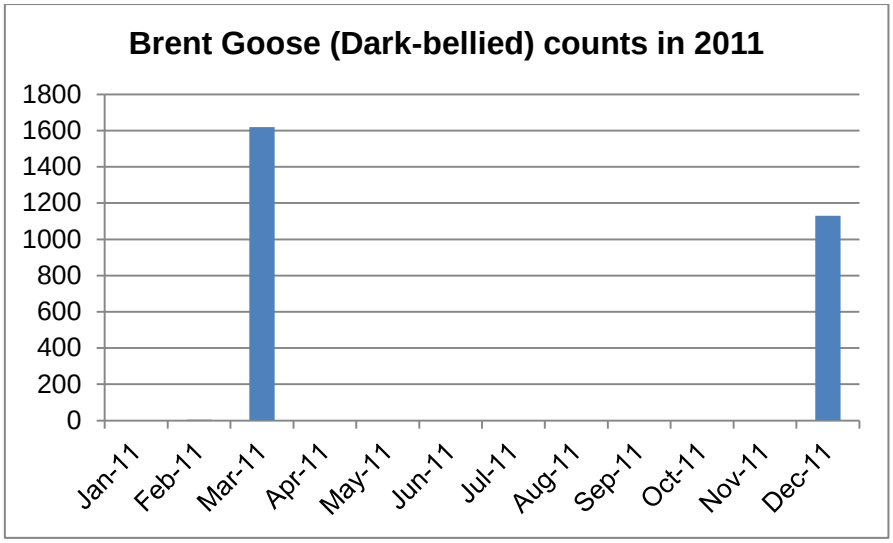
Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Dec-13	0
DB	Brent Goose (Dark-bellied)	Nov-13	880
DB	Brent Goose (Dark-bellied)	Oct-13	0
DB	Brent Goose (Dark-bellied)	Sep-13	0
DB	Brent Goose (Dark-bellied)	Aug-13	0
DB	Brent Goose (Dark-bellied)	Jul-13	0
DB	Brent Goose (Dark-bellied)	Jun-13	0
DB	Brent Goose (Dark-bellied)	May-13	0
DB	Brent Goose (Dark-bellied)	Apr-13	16
DB	Brent Goose (Dark-bellied)	Mar-13	30
DB	Brent Goose (Dark-bellied)	Feb-13	2280
DB	Brent Goose (Dark-bellied)	Jan-13	7



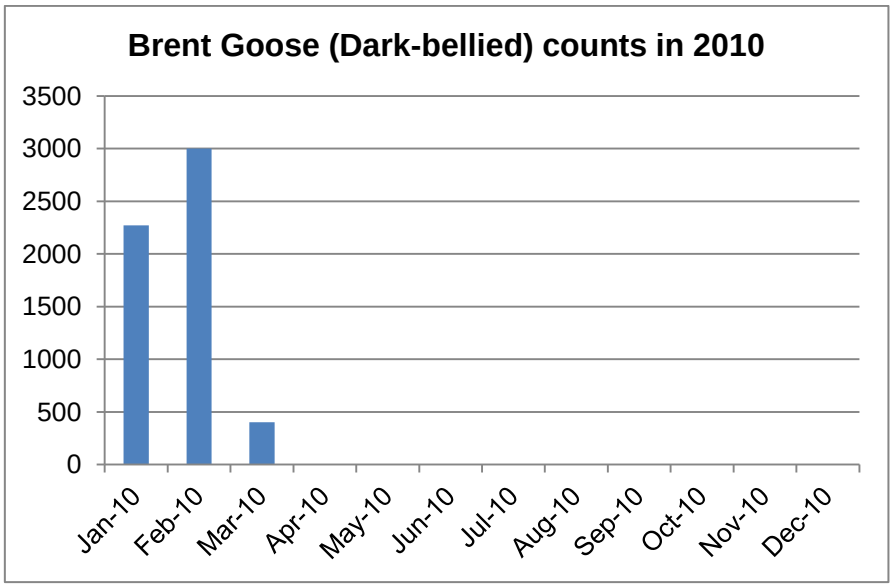
Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Dec-12	2180
DB	Brent Goose (Dark-bellied)	Nov-12	1740
DB	Brent Goose (Dark-bellied)	Oct-12	0
DB	Brent Goose (Dark-bellied)	Sep-12	0
DB	Brent Goose (Dark-bellied)	Aug-12	0
DB	Brent Goose (Dark-bellied)	Jun-12	0
DB	Brent Goose (Dark-bellied)	May-12	0
DB	Brent Goose (Dark-bellied)	Apr-12	0
DB	Brent Goose (Dark-bellied)	Mar-12	0
DB	Brent Goose (Dark-bellied)	Feb-12	2500
DB	Brent Goose (Dark-bellied)	Jan-12	1800



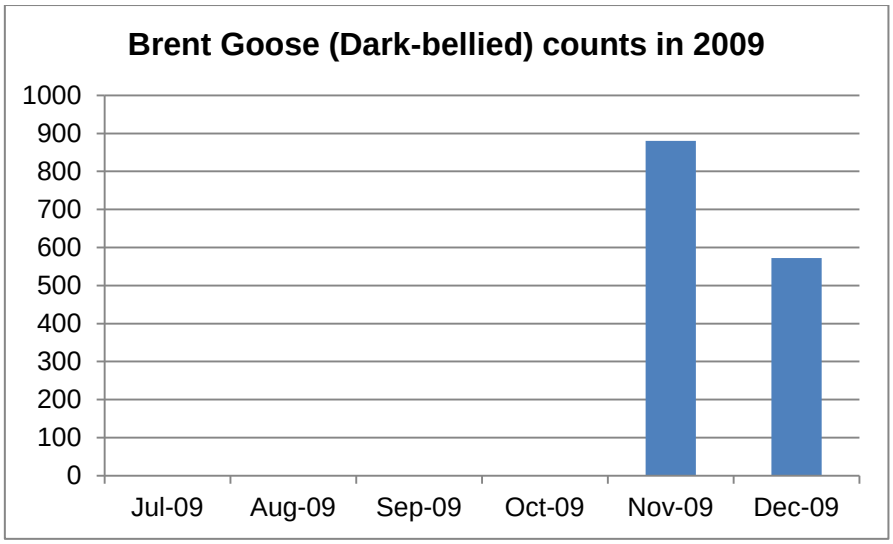
Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Dec-11	1130
DB	Brent Goose (Dark-bellied)	Nov-11	0
DB	Brent Goose (Dark-bellied)	Sep-11	0
DB	Brent Goose (Dark-bellied)	Aug-11	0
DB	Brent Goose (Dark-bellied)	Jul-11	0
DB	Brent Goose (Dark-bellied)	Jun-11	0
DB	Brent Goose (Dark-bellied)	May-11	0
DB	Brent Goose (Dark-bellied)	Apr-11	1
DB	Brent Goose (Dark-bellied)	Mar-11	1620
DB	Brent Goose (Dark-bellied)	Feb-11	5
DB	Brent Goose (Dark-bellied)	Jan-11	0



Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Dec-10	0
DB	Brent Goose (Dark-bellied)	Nov-10	0
DB	Brent Goose (Dark-bellied)	Oct-10	0
DB	Brent Goose (Dark-bellied)	Sep-10	0
DB	Brent Goose (Dark-bellied)	Aug-10	0
DB	Brent Goose (Dark-bellied)	Jul-10	0
DB	Brent Goose (Dark-bellied)	Jun-10	0
DB	Brent Goose (Dark-bellied)	May-10	0
DB	Brent Goose (Dark-bellied)	Apr-10	0
DB	Brent Goose (Dark-bellied)	Mar-10	401
DB	Brent Goose (Dark-bellied)	Feb-10	3001
DB	Brent Goose (Dark-bellied)	Jan-10	2270



Species Code	Species Name	Date	Count
DB	Brent Goose (Dark-bellied)	Dec-09	572
DB	Brent Goose (Dark-bellied)	Nov-09	880
DB	Brent Goose (Dark-bellied)	Oct-09	0
DB	Brent Goose (Dark-bellied)	Sep-09	0
DB	Brent Goose (Dark-bellied)	Aug-09	0
DB	Brent Goose (Dark-bellied)	Jul-09	0



Appendix 7. Sussex Biological Records Centre (SxBRC) Brent Goose Annual Peak Count per Survey Area (Refer to accompanying plan)

		1986	1987	1988	1990	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
A	1																											461
	1km^2															1000	2000								1000			
B	1	3000	2500						10			150	500	500		25	3			1046	2	1000	2000			200		
	2										50																500	1500
	3																										37	
	1km^2	1800																					1500				1900	
C	1				284	1002		1830	2400	2500	2051								20		636	300			5	1500	6	
	2		5	110				400		15	1			6		70		1000	1500	1500	700			800		350	1000	
	3													1														
	4	17																		1200	1200	1100						
	5														700			1000						300	2500	27		
	6																											
	7				3500	4360		3000	4500	2797		200		100			75	35						2000	1000	1800	2100	
	8	400						1500										800			150			200		200		
	9	500		12					1000							3						1200				200	12	868
	10																								93			
	11		900											4														
	12					1000		1			77		500			1		1		2000				1	1		800	670
	13																											
	14													1500						1000								
	15																				1100							
	16		500							1200		2										5		750			220	
	17							800																2000	7		70	
	18										800																	
	19																											1630
	20																											1157
	21																											730
	1km^2	3500	3000				1000	2200	2750	1	1400	1520	2	1000	20	1800	3000	1000	1000	2000	2000	1500	2000	3000	2100	2000	2200	8252
D	1				2200																							
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F	1km^2														150	17											
G	1	1154																									
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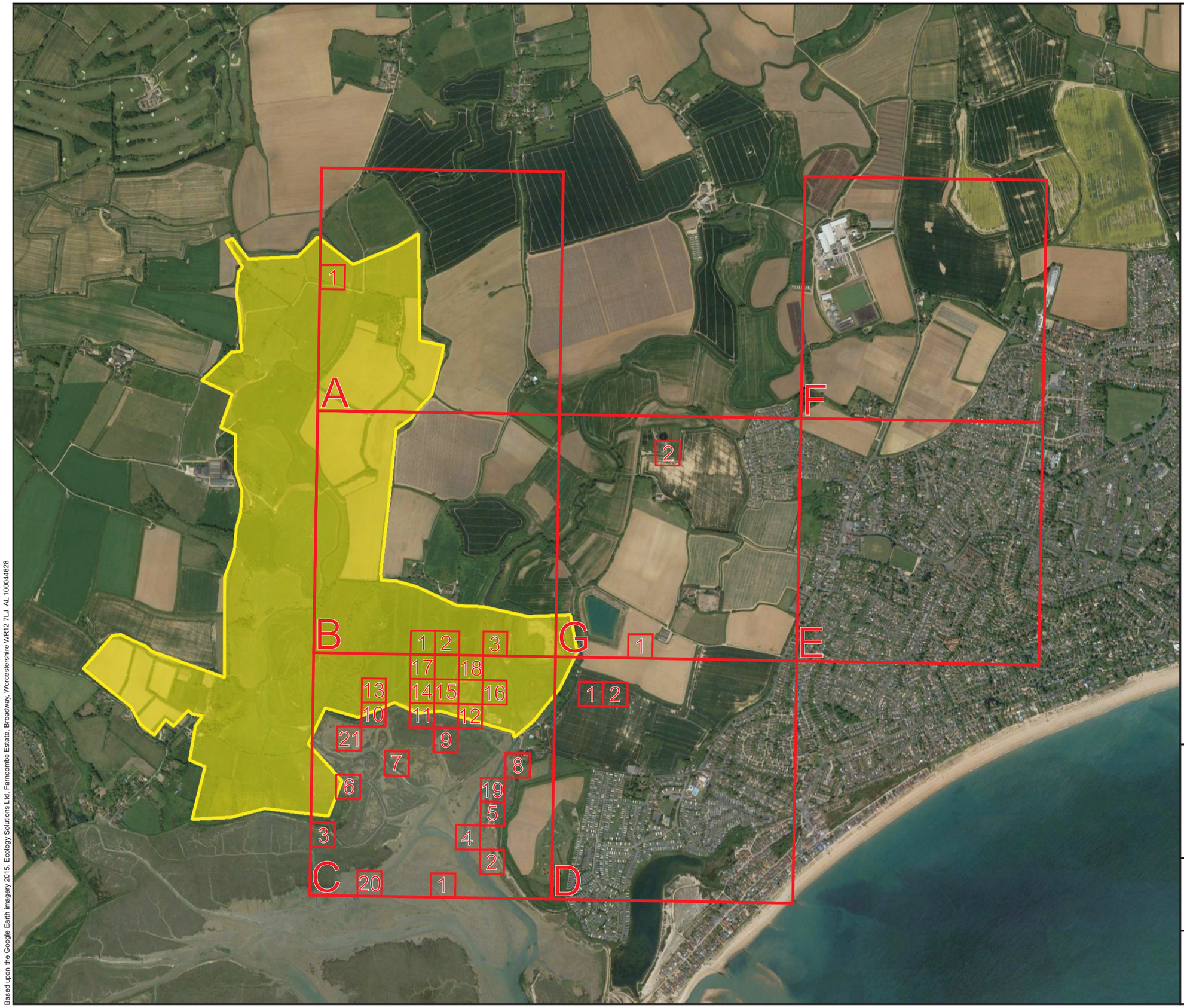

KEY:

SEARCH AREA FOR BRENT GOOSE WETLAND BIRD SURVEY (WeBS) DATA OF CLOSEST AND MOST RELEVANT AREA.

N# LOCATIONS OF BRENT GOOSE RECORDS PROVIDED BY SUSSEX BIOLOGICAL RECORDS CENTRE (SxBRC)

See accompanying table for detail of records

N

ecology solutions ltd

5633: PAGHAM SOUTH

APPENDIX 7: DARK BELLIED BRENT GEESE BASELINE INFORMATION

Based upon the Google Earth imagery 2015. Ecology Solutions Ltd, Farncombe Estate, Broadway, Worcestershire WR12 7LJ. AL 100044628

CoBRA Number	Site Name	Species Name	Arrival Date	Departure Date	Number	Breeding Status	Grid Ref	Notes
3803419	Pagham Village	Mute Swan	01/01/2012			X	SZ887977	Nominal date. Resident at 34 Pagham Road since 1993 and interviewed on 22 Jul 2017 said that they have seen Mute Swan in fields south of Pagham Village Hall - numbers unquantified. Also sees Skylark & gulls & Brent Geese and deer.
3803424	Pagham Village	Mute Swan	01/01/2012			X	SZ887977	Nominal date. Resident at 40 Pagham Road since 1993 (and interviewed on 22 Jul 2017) said that they have seen Mute Swan in fields south of Pagham Village Hall - numbers unquantified. Also sees gulls & Brent Geese and Fox.
3803440	Pagham Village	Mute Swan	01/01/2012			X	SZ888981	Nominal date. Resident at 92 Pagham Road since 1980 (and interviewed on 29 Jul 2017) - reports that they see Mute Swan in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese & Lapwing & Skylark plus Slow worm and Bats.
3803407	Pagham Village	Brent Goose	01/01/2012		100	X	SZ886976	Nominal date. Resident at 2 Pagham Road since 2008 interviewed on 22 July 2017 said that they see 100's of Brent Geese annually in fields south of Pagham Village Hall . Also has seen fox and bats.
3803408	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ886976	Nominal date. Resident at 4 Pagham Road since 1988 interviewed on 22 July 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers from less than a hundred to over 1000 on occasions - but that there has been a drop in numbers in w
3803409	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ886976	Nominal date. Resident at 16 Pagham Road since 1996 interviewed on 28 July 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall; ranging in numbers to over 1000 on occasions - but that there has been a drop in numbers in winter 2016/17. Also has
3803411	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ886976	Nominal date. Resident at 18 Pagham Road since 1988 interviewed on 22 Jul 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers from less than a hundred to over 1000 on occasions - but that there has been an increase in bird scare
3803412	Pagham Village	Brent Goose	01/01/2012		100	X	SZ886976	Nominal date. Resident at 20 Pagham Road since 2000 interviewed on 22 Jul 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers from less than a hundred to hundreds on occasions.
3803413	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ886976	Nominal date. J. Feast at White Rock (21 Pagham Road) - resident since 1998 - interviewed on 22 Jul 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers from less than 100 to over 1000 on occasions - but that there has been a drop
3803414	Pagham Village	Brent Goose	01/01/2012		100	X	SZ886976	Nominal date. Resident at 26 Pagham Road since 1992 (and interviewed on 29 July 2017) said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers from less than a hundred to hundreds on occasions.
3803415	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ886976	Nominal date. S.M.Hedges at 28 Pagham Road - resident since 1990 - interviewed on 22 Jul 2017 that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers from less than 100 to over 1000 on occasions. Also has seen gulls.
3803416	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Resident at 30 Pagham Road since 1971 reports and interviewed on 22 July 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers up to thousands on occasions. Also sees fox and gulls
3803417	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Resident at 32 Pagham Road since 2004 and interviewed on 22 Jul 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers up to thousands on occasions. Also sees gulls and lots of bats.
3803418	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Resident at 34 Pagham Road since 1993 and interviewed on 22 Jul 2017 said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions. Also sees Skylark & gulls & Mute Swans and dee
3803420	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Mary Cash - resident at 34A Pagham Road since 1993 and interviewed on 29 Jul 2017 - said that she sees Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions. Also sees Skylark & gulls & Mute S
3803421	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Resident at 36 Pagham Road since 2011 and interviewed on 29 July 2017; said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions.
3803422	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Resident at 38 Pagham Road since 1997 (and interviewed on 22 July 2017) said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions. Also sees lots of other birds as well as Bats ar
3803423	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. Resident at 40 Pagham Road since 1993 (and interviewed on 22 Jul 2017) said that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions. Also sees Mute Swans and Gulls and Fox.
3803425	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ887977	Nominal date. B R Bacon - resident at 42 Pagham Road since 1977 (and interviewed on 22 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions. Also sees Gulls and Bats.
3803426	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888978	Nominal date. Resident at 52 Pagham Road since 2000 (and interviewed on 28 Jul 2017) - reports that he see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers up to thousands on occasions. Also sees Gulls & Skylark & Lapwing and Bats.
3803428	Pagham Village	Brent Goose	01/01/2012		100	X	SZ888978	Nominal date. Resident at 56 Pagham Road since 2012 (and interviewed on 28 July 2017) said that they see Brent Geese annually in fields south of Pagham Village Hall with up to hundreds on occasions. Also see Gulls Fox and Bats
3803429	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888978	Nominal date. Resident at 58 Pagham Road since 1982 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and up to thousands on occasions. Also sees Gulls & Heron & Lapwing
3803430	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888978	Nominal date. Resident at 60 Pagham Road since 2004 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers up to thousands on occasions. Also sees Skylark and Bats.
3803431	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888978	Nominal date. Resident at 62 Pagham Road since 2002 (and interviewed on 28Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers between hundreds and thousands on occasions. Also sees Curlew and Lapwing and Bats.
3803434	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888978	Nominal date. Resident at 64 Pagham Road since 2002 (and interviewed on 27 Jul 2017) - reports that they see Brent Geese regularly in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also sees lots of Bats.
3803435	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888979	Nominal date. Diane Orde - resident at 74 Pagham Road since 1984 (interviewed on 28 Jul 2017) - reports that she sees Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of hundreds up to thousands on occasions. Also Bats.
3803436	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888980	Nominal date. Resident at 82 Pagham Road since 2011 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese regularly in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also Bats.
3803437	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888981	Nominal date. Resident at 90 Pagham Road since 2012 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also Gulls and Heron and Bats.
3803438	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888981	Nominal date. Resident at 92 Pagham Road since 2002 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also see Fox and Bats.
3803439	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ888981	Nominal date. Resident at 92 Pagham Road since 1980 (and interviewed on 29 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also see Mute Swan & Lapwing & Skylark plus Slow worm
3803442	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 100 Pagham Road since 2008 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also see Fox and Deer and Bats.
3803443	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 104 Pagham Road since 2004 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also see Fox and Bats.
3803444	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 116 Pagham Road since 1978 (and interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also see Gulls and Fox and Bats.
3803445	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 122 Pagham Road since 1989 (interviewed on 28 Jul 2017) - reports that they see Brent Geese annually in fields south of Pagham Village Hall ranging in numbers of up to thousands on occasions. Also see Lapwing and Bats.
3803447	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 6 Nyetimber Mill since 2012 (interviewed walking along Pagham Road on 22 Jul 2017) - reports that they occasionally see Brent Geese in fields south of Pagham Village Hall - sometimes numbering over 1000.
3803448	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 92 Harbour View since 2006 (interviewed walking along Pagham Road on 22 Jul 2017) - reports that they annually see Brent Geese in fields south of Pagham Village Hall - numbering hundreds to over 1000.
3803449	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 19 Cardinals Drive since 1983 (interviewed walking along Pagham Road on 24 Jul 2017) - reports that they annually see Brent Geese in fields south of Pagham Village Hall - numbering hundreds to over 1000. Also see Lapwing and Curlew in winter months.
3803452	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 3 Churchill Walk since 2011 (interviewed walking along Pagham Road on 24 Jul 2017) - reports that they annually see Brent Geese in fields south of Pagham Village Hall - numbering hundreds to over 1000. Also see Bats.
3803453	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 54 Causeway since 2002 (interviewed walking along Pagham Road on 24 Jul 2017) - reports that they annually see Brent Geese in fields south of Pagham Village Hall - numbering over 1000 on occasions. Also see Skylark and Hares and Deer.
3803454	Pagham Village	Brent Goose	01/01/2012		1000	X	SZ889982	Nominal date. Resident at 4 Church Lane since 2009 (interviewed walking along Pagham Road on 29 Jul 2017) - reports that they annually see Brent Geese in fields south of Pagham Village Hall - numbering over 1000 on occasions. Also see Lapwing and Golden Plover and Curlew. P
3803457	Pagham Village	Golden Plover	01/01/2012			X	SZ889982	Nominal date. Resident at 4 Church Lane since 2009 (interviewed walking along Pagham Road on 29 Jul 2017) - reports that they have seen Golden Plover in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese and Lapwing and Curlew. Plus Deer and B
3803410	Pagham Village	Lapwing	01/01/2012			X	SZ886976	Nominal date. Resident at 16 Pagham Road since 1996 interviewed on 28 July 2017 said that they have seen Lapwing in fields south of Pagham Village Hall - numbers not quantified. Also has seen gulls Brent Geese and bats.
3803427	Pagham Village	Lapwing	01/01/2012			X	SZ888978	Nominal date. Resident at 52 Pagham Road since 2000 (and interviewed on 28 July 2017) said that he has seen Lapwing in fields south of Pagham Village Hall - numbers not quantified. Also has seen gulls & Brent Geese & Skylark and bats.
3803433	Pagham Village	Lapwing	01/01/2012			X	SZ888978	Nominal date. Resident at 62 Pagham Road since 20002 (and interviewed on 28 July 2017) said that he has seen Lapwing in fields south of Pagham Village Hall - numbers not quantified. Also has seen Brent Geese & Curlew and bats.
3803441	Pagham Village	Lapwing	01/01/2012			X	SZ888981	Nominal date. Resident at 92 Pagham Road since 1980 (and interviewed on 29 Jul 2017) - reports that they see Lapwing in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese & Mute Swan & Skylark plus Slow worm and Bats.
3803446	Pagham Village	Lapwing	01/01/2012			X	SZ889982	Nominal date. Resident at 122 Pagham Road since 1989 (and interviewed on 29 Jul 2017) - reports that they see Lapwing in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese and Bats.
3803450	Pagham Village	Lapwing	01/01/2012			X	SZ889982	Nominal date. Resident at 19 Cardinals Drive since 1983 (interviewed walking along Pagham Road on 24 Jul 2017) - reports that they have seen Lapwing during winter months in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese and Curlew in winter
3803455	Pagham Village	Lapwing	01/01/2012			X	SZ889982	Nominal date. Resident at 4 Church Lane since 2009 (interviewed walking along Pagham Road on 29 Jul 2017) - reports that they have seen Lapwing in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese and Curlew and Golden Plover. Plus Deer and B
3803432	Pagham Village	Curlew	01/01/2012			X	SZ888978	Nominal date. Resident at 62 Pagham Road since 20002 (and interviewed on 28 July 2017) said that he has seen Curlew in fields south of Pagham Village Hall - numbers not quantified. Also has seen Brent Geese & Lapwing and bats.
3803451	Pagham Village	Curlew	01/01/2012			X	SZ889982	Nominal date. Resident at 19 Cardinals Drive since 1983 (interviewed walking along Pagham Road on 24 Jul 2017) - reports that they have seen Curlew during winter months in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese and Lapwing in winter
3803456	Pagham Village	Curlew	01/01/2012			X	SZ889982	Nominal date. Resident at 4 Church Lane since 2009 (interviewed walking along Pagham Road on 29 Jul 2017) - reports that they have seen Curlew in fields south of Pagham Village Hall - numbers unquantified. Also see Brent Geese and Lapwing and Golden Plover. Plus Deer and B

APPENDIX 8

Additional information provided by the Sussex Ornithological Society

Appendix 1

BRENT GEESE SURVEY, PAGHAM ROAD, JULY 2017.

I undertook this survey in conjunction with PAGAM and the Sussex Ornithological Society following concerns that the Wildlife Report prepared by Ecology Solutions for Hanbury Properties had not identified Brent Geese using the fields that were the subject of planning application P/140/16/OUT.

The survey was to include all those properties in Pagham Road that overlooked the fields subject to the above planning application. This included all those properties between Sea Lane and Church Way, Pagham. A total of 58 properties. I only interviewed residents who had lived in Pagham Road for more than 3 years. This excluded 4 properties. 2 other residents declined to be interviewed, 2 properties were unoccupied and 18 householders were not in despite my calling 3 times. This meant I interviewed residents at 32 properties during the period 22nd July to 29th July.

Residents were asked 6 questions.

1. Address
2. How long they had lived there.
3. Had they seen Brent Geese – annually, regularly, occasionally, never.
4. Had they seen Brent Geese in 1000's, 100's or less.
5. What other wildlife had they seen on the fields.
6. Any other comments.

2. Length of residence ranged from 47 years to 5 years. The average was 21 years.

3. 31 houses had seen Brent Geese annually. 97%

4. 27 houses had seen flocks of Brent Geese in excess of 1000. 84%.

Whilst walking Pagham Road I encountered 6 local dog walking villagers all of whom reported seeing Brent Geese on the fields on an annual basis.

5. Other wildlife recorded was as follows. The figure in brackets indicates the number of houses reporting.

- Mammals – Bats (21), fox (12), and Deer (5).
- Birds – Gulls (14), Lapwing (6), Skylark (5), Mute Swan (3), Curlew (2), Grey Heron (2), Pheasant (1), Partridge (1) and Birds (2).
- Other – Slow Worms (2).

6. Any other comments:

Many residents had considerable concerns about the possible impact of 400 proposed homes on the village infrastructure. I only recorded comments relevant to a wildlife survey. Many residents felt an affection towards the geese and looked forward to their return each year. The geese were seen as a local attraction. Several residents had noticed that numbers were down during the months of January – March 2017. A number thought that this was due to the increased usage of bird scaring devices. Residents regretted that the approval of this planning application would mean the loss of valuable agricultural land and the loss of a habitat clearly favoured by Brent Geese.

JDW/PAGROAD/SURVEY/july 2017

CoBRA Number	Site Name	Species Name	Arrival Date	Departure Date	Number	Breeding Status	Grid Ref	Notes	Finder Name	Sc
3751141	Pagham Village	Mute Swan	30/01/2012			X	SZ887988	Several at this spot on 30 Jan. Also seen Mute Swan in winter in fields behind the Village Hall on numerous occassions in winter.	Mitchell	
3751134	Pagham Village	Bean Goose (Tundra)	14/01/2009		4	X	SZ885985	Seen flying over and doing a circuit - had been searching for them for ages.	Mitchell	
3751143	Pagham Village	Brent Goose	12/02/2012		2500	X	SZ887988	2500 in fields behind the Village Hall	Mitchell	
3751125	Pagham Village	Brent Goose	06/01/2014		2100	X	SZ882984	By Shipvering Barn. Grid ref is mid point of the flock. Extracted from http://selseybird.blogspot.com	Weston	
3751126	Pagham Village	Brent Goose	24/01/2014		1600	X	SZ885983	Church Barton Reservoir. Extracted from http://selseybird.blogspot.com	Weston	
3751128	Pagham Village	Brent Goose	20/01/2016		2500	X	SZ884988	In fields alongside Village Hall. Grid ref is mid point of the flock. Extracted from http://selseybird.blogspot.com.. Same flock also recorded on the blog by Jim Weston and Bart Ives.	Janman	
3751130	Pagham Village	Brent Goose	15/01/2017		1600	X	SZ885983	Church Barton Reservoir. Extracted from http://selseybird.blogspot.com	Weston	
3751129	Pagham Village	Black Brant	20/01/2016		1	X	SZ884988	In fields alongside Village Hall amongst flock of 2500 Brent Geese. Extracted from http://selseybird.blogspot.com	Janman	
3751132	Pagham Village	Grey Heron	07/02/2017		1	X	SZ8897	In fields beside Paghan Road with 120 Gulls; 42 Curlew and 2 Roe Deer. Extracted from http://selseybird.blogspot.com	Weston	
3751142	Pagham Village	Marsh Harrier	12/02/2012		1	X	SZ8897	Female quartering over much of SZ8897 and SZ8898 including east towards Pagham Road.	Mitchell	
3751135	Pagham Village	Golden Plover	14/01/2009		200	X	SZ885985	200 settled at this spot for a while before moving further west	Mitchell	
3751137	Pagham Village	Golden Plover	13/03/2009		250	X	SZ885985	A flock of 2000 Lapwing and 500 Golden Plover on North Fields broke up and a flock of 500 embracing both species settled on the fields near to Summer lane	Mitchell	
3751136	Pagham Village	Lapwing	13/03/2009		250	X	SZ885985	A flock of 2000 Lapwing and 500 Golden Plover on North Fields broke up and a flock of 500 embracing both species settled on the fields near to Summer lane	Mitchell	
3751138	Pagham Village	Lapwing	11/12/2009		300	X	SZ885985	Over 2500 Lapwing counted in the area on 11 Dec of which several hundred (say 300) settled close to Summer Lane/Church Barton area.	Mitchell	
3751127	Pagham Village	Lapwing	27/10/2015		560	X	SZ888978	In fields north of Church Lane. Extracted from http://selseybird.blogspot.com	Weston	
3751139	Pagham Village	Curlew	20/02/2011		100	X	SZ885985	Over 100 of the 380 seen at North Fields were near to SZ885985.	Mitchell	
3751131	Pagham Village	Curlew	07/02/2017		42	X	SZ888978	In fields beside Paghan Road with 120 Gulls; a Heron and 2 Roe Deer. Extracted from http://selseybird.blogspot.com	Weston	
3751140	Pagham Village	Black-tailed Godwit	20/02/2011		70	X	SZ888988	70 on wet grassland nearer to Village Hall/ Summer lane than the nearby Curlew. Part of a flock of 380 around the North Fields area with some commuting between the groups.	Mitchell	
3751133	Pagham Village	Unidentified Gull Spp	07/02/2017		120	X	SZ8897	In fields beside Paghan Road with a heron; 42 Curlew and 2 Roe Deer. Extracted from http://selseybird.blogspot.com	Weston	

APPENDIX 9

Letter from Natural England dated 13th December 2017

Date: 13 December 2017
Our ref: DAS/10802/232857
Your ref: Land S of Summer Lane, Pagham

Karl Goodbun
Ecology Solutions Ltd
Farncombe House
Farncombe Estate
Broadway
Worcs WR12 7LJ

BY EMAIL ONLY

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

Dear Karl

Discretionary Advice Service (Charged Advice)
DAS/10802/232857
Development proposal and location: Housing development on land south of Summer Lane, Pagham, West Sussex

Thank you for your consultation on the above dated 01 December 2017, which was received on the same date.

This advice is being provided as part of Natural England's Discretionary Advice Service. Ecology Solutions Ltd has asked Natural England to provide advice upon:

- The Brent Goose Mitigation Plan produced to support the planning application (Ref: P140/16/OUT) for housing development on land south of Summer Lane, Pagham

This advice is provided in accordance with the Quotation and Agreement dated TBC.

The following advice is based upon a review of the Pagham South Brent Goose Mitigation Plan, December 2017 (ref. 5633.BGMP.vf1). This advice builds on that contained in the letter dated 29 June 2016 (DAS/10802/187760), and that dated 23 November 2017 (DAS/10802/230714).

I confirm that the Brent Goose Mitigation Plan (BGMP) follows the principles for mitigation set out in the letter dated 23 November 2017.

Proposed mitigation strategy
Paragraphs 2.1 to 2.4 of the BGMP set out the strategy designed to mitigate any potential impacts on dark-bellied brent geese, which are a feature of the Pagham Harbour Special Protection Area (SPA) and Ramsar site. The strategy is a combination of measures that address disturbance to brent geese foraging in fields adjacent to the proposal, and measures to replace lost foraging habitat. This is appropriate and welcomed, given the survey records of brent geese using the adjacent fields, and reports from local people of geese using the application site.

<u>Measures to minimise disturbance</u>
Measures to minimise disturbance to brent geese foraging in adjacent fields have already been defined in the documents submitted to Arun District Council in support of application P140/16/OUT. Dense new tree planting along the western boundary of the application site will avoid visual disturbance from people. I recommend that this is planted as soon as works start, so that it has the maximum time to mature before first occupation.

Open space is planned along the western boundary of the site. This is welcomed as it will provide a recreational resource for people and will provide a buffer between the proposed housing and adjacent fields. I recommend that additional fencing along the boundary line is put in place to stop

dogs escaping onto adjacent fields. This is particularly important along the parts of the boundary where there is no current hedgerow.

Potential disturbance from people using existing footpaths which run from the application site towards the SPA will be addressed by the strategic approach to recreational disturbance. The wardening that this comprises can be targeted towards these footpaths as necessary. The officer employed by the project can also target new residents, for example by giving talks/guided walks explaining the importance of the SPA, which will be agreed by the steering group (made up of Arun and Chichester Councils, Natural England and the RSPB).

In addition, the application set out the provision of open space. As stated in our letter to Arun DC dated 13 February 2017, Natural England's formal view on the planning application is that the 3.92ha of semi-natural greenspace, which allows dog owners to let their dogs off leads, may take some of the short daily dog walks away from the harbour. Consequently, it may also reduce disturbance to brent geese using fields adjacent to the footpaths between the application site and the SPA.

Measures to replace lost habitat

The measures to replace, on a precautionary basis, the area of potential brent goose foraging habitat lost to the proposals, are set out in paragraph 2.4 of the BGMP. These broad measures follow the principles I set out in my advice to you (letter dated 23 November 2017).

Location of replacement habitat:

I can confirm that the location of the proposed mitigation land (shown at Plan ECO1) is acceptable as it is closer to Pagham Harbour than the application site. This means it will be favoured from an energetics point of view, as the geese will expend less energy flying to the mitigation land from their roost site than to the application site. In addition, the location adjacent to the SPA, but away from existing footpaths (and roads) is beneficial.

Area of replacement habitat:

Details of the crop rotation have been helpfully provided, which have been used to calculate the area that could potentially be used by foraging brent geese. This calculation has followed the advice set out in my letter dated 23 November 2017, and gives a maximum requirement of 18.7ha (paragraph 2.23). The BGMP goes on to state that this will be provided through approximately 5ha of permanent habitat managed for brent geese, and a total of 18.5ha where bird scaring to reduce crop damage will no longer occur (shown on Plan ECO1). As this is secured in perpetuity, it represents an improvement over the current situation, and my view is that it is sufficient.

Habitat management:

The combination of permanent winter cereal/clover cropping, and permanent wet grassland creation described in paragraphs 3.5 – 3.10, follows the advice set out in my letter of 23 November 2017. The land that has recently been left fallow is currently made up of rank vegetation with a high proportion of rushes and reeds. Whilst the frequently flooded part of the site has value for passage and wintering waders and wildfowl, and possibly breeding lapwing, the grassland is not suitable for brent geese. Therefore, the proposed grassland management regime, and creation of permanent scrapes, represents a benefit for brent geese, without compromising the interest for waders and other wildfowl. However, Natural England will comment on the detailed Management Plan for the site, when it is consulted on at reserved matters stage.

Sight lines for brent geese:

Scrub clearance is proposed on the boundaries of the habitat creation area. In principle, this is welcomed as it will open up sight lines for brent geese and increase the likelihood that they will use the habitat created. However, as discussed with you by telephone, the Natural England land management adviser for Pagham Harbour has some concerns over the impacts of this on wider biodiversity interests. Therefore, as described in paragraph 3.15 of the BGMP, we would welcome further discussion over this point as the detailed Management Plan is developed.

Cessation of bird scaring:

The cessation of bird scaring measures over the area described in Plan ECO1 is essential for the successful implementation of the measures described above, and would be an improvement over the current situation. Therefore, the commitment to cessation of bird scaring in perpetuity is welcomed.

In conclusion, I agree that the package of measures described above and set out in the BGMP are sufficient to avoid a likely significant effect on the SPA from loss of brent goose foraging habitat.

Approach to consenting

I understand from discussions with Sussex Ornithological Society that they and the RSPB are planning brent geese surveys to create usage maps. This may lead to a strategic approach to mitigation, and identification of alternative brent goose reserves, which would have to be agreed by Arun and Chichester District Councils. Therefore, the approach set out in paragraph 2.6 of the BGMP is welcomed – namely that in the future, the applicant may, in agreement with Arun DC, make financial contributions to any strategic mitigation package, in lieu of the measures set out in the BGMP. However, I agree that there is no need to wait for such a strategic mitigation package, as the measures in the BGMP are sufficient to avoid a likely significant effect.

It will be for Arun District Council to advise on the appropriate methods of securing the mitigation measures set out in the BGMP. However, in principle, a Grampian Condition, as described in paragraph 4.6.2 would be acceptable. I agree with the statement in 4.6.4 that a Grampian Condition and the conditioning of the management plan would give sufficient comfort to Arun DC that a likely significant effect could be avoided and hence no adverse effect on the integrity of the SPA would arise.

Timing of works

The provision of the mitigation measures set out in paragraphs 4.3 to 4.6 of the BGMP in advance of commencement of development is welcomed, and compliant with the Habitats Regulations, as it ensures that the mitigation habitat will be available before the loss occurs.

For clarification of any points in this letter, please contact Alison Giacomelli on 0208 225 7693.

This letter concludes Natural England's Advice within the Quotation and Agreement dated TBC.

commercialservices@naturalengland.org.uk

As the Discretionary Advice Service is a new service, we would appreciate your feedback to help shape this service. We have attached a feedback form to this letter and would welcome any comments you might have about our service.

☒ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

Alison Giacomelli
Specialist Services and Programmes

Cc commercialservices@naturalengland.org.uk

Annex 1
European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's 'How to get a licence' publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's guidance on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

Natural England's pre-submission Screening Service can screen application drafts prior to formal submission, whether or not the relevant planning permission is already in place. Screening will help applicants by making an assessment of whether the draft application is likely to meet licensing requirements, and, if necessary, provide specific guidance on how to address any shortfalls. The advice should help developers and ecological consultants to better manage the risks or costs they may face in having to wait until the formal submission stage after planning permission is secured, or in responding to requests for further information following an initial formal application.

The service will be available for new applications, resubmissions or modifications – depending on customer requirements. More information can be found on Natural England's website.

APPENDIX 10

Copy of Brent Goose Mitigation Plan (December 2017)

ecology solutions ltd

HANBURY (PM) LTD

PAGHAM SOUTH

BRENT GOOSE MITIGATION PLAN

December 2017
5633.BGMP.vf1

ecology solutions for planners and developers

ARUN DISTRICT COUNCIL P/140/16/OUT

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APPENDICES

APPENDIX 1	Letter from Natural England dated 23rd November 2017
APPENDIX 2	Information on cropping regimes

1. INTRODUCTION

1.1. Ecology Solutions was commissioned by Hanbury (PM) Ltd to undertake ecological assessment work pursuant to the production of documentation in support of planning application (Ref: P140/16/OUT) submitted in respect of Pagham South, West Sussex in 2016.

1.2. Development Proposals are for the Application Site are for the provision of residential development (up to 400 units) along with public open space, retail and community provisions (including a primary school) associated landscape and biodiversity measures and access. The planning application remains undetermined at this stage.

1.3. As part of that commission, Ecology Solutions were specifically instructed to assess implications of the Development Proposals on nearby designated sites of European/international importance, namely the Pagham Harbour Special Protection Area (SPA) / Ramsar site.

1.4. The findings of that assessment work were set out within the 'Information to enable a Habitats Regulations Assessment' document (December 2016), such that the competent authority (in this instance Arun District Council) had the necessary information before it in order to carry out its duties in considering the application in line with relevant planning policy and legislation, including specifically The Conservation of Habitats and Species Regulations 2010 (hereinafter referred to as the Habitats Regulations).

1.5. Considerations in respect of Brent Geese are required in this instance on the basis that this species is a qualifying interest feature of the Pagham Harbour SPA / Ramsar Site (and SSSI). Whilst no part of the Application Site extends to include land classified / designated as part of the SPA / Ramsar site, the Application Site comprises land which could represent a resource for the wintering Brent Goose population associated with the SPA / Ramsar site. The Application Site adjoins extensive farmland which represents an alternative resource for Brent Geese and indeed some of this land has been demonstrated to support them through detailed survey work undertaken. In addressing the tests of the Habitats Regulations, consideration should be given to potential implications of development proposals for qualifying interest features, on land which may be considered important for such species (i.e. the land is functionally linked to the SPA / Ramsar site).

1.6. The IHRA (December 2017) concluded that (Dark-bellied) Brent Geese would be likely to utilise the Application Site from time to time. This conclusion was based upon an assessment of the suitability of habitats present within the Application Site, data obtained as part of a desk based exercise (including data from the Sussex Ornithological Society - SOS) and third-party information (local residents) obtained through the public consultation exercise. By way of summary, detailed ornithological surveys undertaken in the winter period over 2014 / 2015 showed no use of the Application Site by Brent Geese and no data search information confirmed use of the Application Site, however local residents reported seeing them using the land.

1.7. On the evidence available, Ecology Solutions concluded that the Application Site was not likely to be of any significance for Brent Geese and that the Development Proposals would not constitute a loss of functionally linked SPA / Ramsar site habitat. Notwithstanding this, the IHRA did consider specific mitigation in respect of Brent Geese in addition to that proposed in respect of avoiding increased recreational impacts on the SPA / Ramsar site. That specific mitigation was based around mitigating disturbance impacts on Brent Geese using adjacent agricultural fields to the west of the Application Site. Boundary treatments, including the delivery of vegetative screening and the setting back of the development were the primary measures.

1.8. However, during the determination period associated with the planning application, representations were made to Arun District Council by Pagham Parish Council (PPC), which included a report produced by an independent ecological consultant. SOS and the Royal Society for the Protection of Birds (RSPB) also submitted representations. The information submitted by PPC and SOS centres around an assertion that the Application Site is used regularly by Brent Geese and that it therefore should be classed as being functionally linked to the SPA / Ramsar site. The RSPB highlights its concerns regarding the potential importance of the Application Site for Brent Geese and provides details of what it considers to be suitable additional mitigation measures.

1.9. Whilst Ecology Solutions maintains that there remains no evidence to allow a conclusion that the Development Proposals would give rise to an adverse effect on the integrity of the SPA / Ramsar site, in liaison with Natural England, additional mitigation is now proposed on a precautionary basis. This additional mitigation is proposed in order to give the Competent Authority the comfort that when undertaking its legal obligations under the Habitats Regulations, the relevant legal tests are not failed.

1.10. It is the clear position of Ecology solutions that, with the delivery of the proposed mitigation / avoidance measures directed specifically at Brent Geese, it is considered that there would be no significant adverse effects on the population of Brent Geese associated with the SPA / Ramsar site. This additional mitigation, in tandem with that proposed in respect of other European designated sites considerations (as considered in detail within the IHRA), gives rise to an overall conclusion that no likely significant effect on the SPA / Ramsar site arises, either alone or in-combination, when the plan or project is considered in the light of the tests at Regulation 61(1) of the Habitats Regulations. There is therefore no requirement to undertake an Appropriate Assessment and a safe planning consent can be granted. In relation to the question of whether mitigation, which is inherent in a plan / project, should be included in an assessment considering the likely significance test at Regulation 61(1), the Dilly Lane judgment is relevant. This is considered briefly below.

1.11. The Secretary of State's decision to allow an appeal in relation to applications for a total of 170 new homes on a greenfield site off Dilly Lane, Hartley Witney was challenged in High Court by Hart District Council. The legal challenge was made on the grounds that the Secretary of State had errored in departing from her Inspector's conclusions as to the effects on the Thames Basin Heaths SPA. A key issue for the case was whether mitigation measures should be disregarded when assessing whether the

project would have a significant effect on the SPA. Mr Justice Sullivan ruled in favour of the Secretary of State after concluding that there was no absolute legal rule that mitigation measures should be disregarded in assessing whether the new homes would have significant effect on the SPA. Mr Justice Sullivan states at paragraph 55 of his judgement:

> *"The competent authority is not considering the likely effect of some hypothetical project in the abstract. The exercise is a practical one which requires the competent authority to consider the likely effect of the particular project for which permission is being sought. If certain features (to use a neutral term) have been incorporated into that project, there is no sensible reason why those features should be ignored at the initial, screening, stage merely because they have been incorporated into the project in order to avoid, or mitigate, any likely effect on the SPA."*

1.12. As such, it is right and proper that mitigation or avoidance measures, which form a feature of a plan / project should be viewed as integral to the plan / project and not excluded when considering the likely significance test at Regulation 61(1). This is the approach adopted in this instance.

1.13. The appropriateness of the measures described within this report have been the subject of discussion with Natural England, and the principals of the proposed mitigation have been agreed, see Appendix 1.

2. PROPOSED MITIGATION STRATEGY

2.1. In line with commitments already made as part of the planning application, along the western boundary of the Application Site a wide swath of open space is to be delivered along its entire length. Dense new tree planting will be introduced along the boundary, significantly bolstering existing hedgerows (present along most, but not all of the boundary). This new planting will act to buffer the development from existing arable and grassland habitat to the west and thus alleviate potential impacts from visual disturbance on Dark-bellied Brent Geese.

2.2. It should be noted that there is no proposal to close any footpaths which link with (or provide access to others which link with) the SPA / Ramsar site. It was agreed with Natural England that such a measure was not required, but instead, the use of these paths should be controlled where possible.

2.3. Use of the footpath network linking with the SPA / Ramsar site will not be promoted on any signage associated with the Development Proposals, nor will it be promoted within any literature provided to new residents. Instead, use of on-site open space will be promoted for use, especially by dog walkers and it will be made clear on proposed signage that certain interest features of the SPA/Ramsar site use habitats in the vicinity and these species are sensitive to disturbance.

2.4. In order to mitigate losses to habitats favoured by Brent Geese, located within the Application Site, the following broad measures are proposed:

- Delivery of habitat enhancements for Brent Geese on land contained within a mitigation area to the west of the Application Site;
- Management of field boundary vegetation associated with specific adjoining fields in a wider mitigation area, to enhance sight lines for Brent Geese, making this field matrix more suited to use by them;
- Cessation of scaring initiatives on mitigation land;
- All proposed measures to be the subject of a detailed management plan; and
- Proposed measures to be the subject of a legal agreement ensuring that the mitigation is secured in perpetuity.

2.5. The above measures are discussed in detail below.

2.6. It is however understood that the RSPB and SOS are commencing on a program of habitat mapping with a view to better understanding which areas around the SPA / Ramsar site may be well placed to form part of a strategic approach to mitigating effects of development on Brent Geese. It is therefore possible that in the future, it may be possible for a development proposal, such as that for the Application Site could place reliance upon this strategic mitigation package. Should this be the case, then the Applicant may, in agreement with Arun District Council, make financial contributions towards any agreed strategic mitigation package, in lieu of measures described in this report. However, at the current time, it is proposed that the measures described in this report will be secured and taken forward (in perpetuity).

Creation of a defined Brent Goose Reserve

2.7. In liaison with Natural England, it was agreed that, in taking a precautionary stance to assessment in relation to potential adverse effects on the population of Brent Geese arising from losses of supporting habitat, an appropriate mitigation initiative would be to secure and enhance an area of land for use by the species.

Location

2.8. In defining the land for use as part of this mitigation package, Ecology Solutions has had due regard to the following:

- The land should be available for use, with appropriate landowner consent;
- It should be feasible to deliver enhancement, over the current situation, including considerations as to the efficacy of maintaining foraging resources long-term;
- The ability to deliver the mitigation land in close proximity to the SPA / Ramsar site;
- Current management of the land in terms of suitability for Brent Geese and any existing Brent Geese scaring initiatives;
- Avoiding indirect impacts which would lessen the likely value of the land for Brent Geese, such as public disturbance;
- The land should be capable of enhancement and management for the benefit of Brent Geese, in the absence of any existing legal (or other) obligation aimed at maintaining or restoring habitat for Brent Geese. For example, the land should not form part of the SPA / Ramsar site, where, in such circumstances, Natural England could enforce remedial or management measures aimed at maintaining the favourable conservation status of habitats and species for which the site is designated (e.g. the Brent Goose population).

2.9. In consultation with the relevant landowner an area of land has been agreed and defined for use within the mitigation package. The land is outside of the SPA / Ramsar site boundary and is not the subject of any current obligation in relation to maintaining or enhancing habitat for Brent Geese (or any other species). It is capable of being physically enhanced through habitat creation measures in some areas (as detailed later within this report). It is also feasible to secure on-going (in perpetuity) agricultural management for arable land which will deliver foraging habitat for Brent Geese. The land is adjacent to the SPA / Ramsar site boundary, representing an optimal location for such mitigation habitat, given the protection afforded to the SPA / Ramsar site and recognised importance of that site for Brent Geese. In this location, there are no public rights of way and access to members of the public can be effectively managed (e.g. avoided).

2.10. The proposed location of the mitigation land is shown graphically at Plan ECO1.

Defining an appropriate area

2.11. The Application Site itself has been calculated to be 22.97ha in size.

2.12. Evidence obtained from the detailed wintering bird surveys undertaken between November 2014 and March 2015 did not reveal use of the Application Site by Brent Geese. As discussed within previous submissions (e.g. the IHRA 2016) this would indicate that the Application Site is not important for Brent Geese, though use from time to time is considered likely.

2.13. The evidence available in relation to use of the Application Site by Brent Geese provided by third parties is not sufficient to allow conclusions regarding the relative importance of each field, or parts thereof. The data either lacks detail in terms of numbers, precise locations and dates / frequency, or where such detail is available, it does not actually point squarely at the Application Site itself being of significant importance. Given all the above, it is not possible to quantify with any degree of certainty the amount of land being lost which may be considered to be a valued resource by Brent Geese.

2.14. To a large extent, use of the Application Site by Brent Geese will be dependent upon the cropping regime, winter wheat or Clover based cover crops being of particular value. Other factors dictating use would include, proximity to built form / infrastructure with associated disturbance (e.g. vehicles, people, dogs) and the availability of resources elsewhere (such as within the protected SPA / Ramsar site or other suitable habitat in the local area).

2.15. Ecology Solutions has been provided with information relating to crop rotation for the main fields associated with the Application Site for the last seven years. Data from previous years is not available due to a change in ownership. Relevant information is reproduced in the table below for ease of reference. Information made available by the landowner, including a map showing field locations, is included at Appendix 2. For those fields which form the Application Site, information is highlighted in red.

Field	Gross Ha	2017	2016	2015	2014	2013	2012	2011
SZ8898 8755	4.08	LET	WW	POT	WW	VEG	MZ	WW
SZ8898 8433	7.49	LET	WW	POT	WW	VEG	MZ	WW
SZ8897 7598	14.05	LET	WW LET	WW LET SW	WW LET	WW LET	WW POT	WW LET
SZ8798 9309	7.04	WW FALL	SB FALL	MZ FAL	SW FALL	SW FALL	SW FALL	WW FALL
SZ8798 9029	8.45	WW	SB	MZ	SW	SW	SW	WW

WW = Winter Wheat; SW = Spring Wheat; LET = Lettuces, SB = Spring Barley; POT = Potatoes; MZ = Maize; VEG = Vegetables; FALL = Fallow.

Table 1: Crop rotation within relevant fields 2011 – 2017.

2.16. As can be seen, for the northern field associated with the Application Site (central Grid Reference SZ 8898 8433) crops have been rotated with Winter Wheat (a foraging resource for Brent Geese) planted in 2011, 2014 and 2016 (three out of seven years). In simplistic terms this can be expressed as, a Brent Goose foraging resource being available in 43% of winters over recent years.

2.17. For the southern parcels (central Grid Reference SZ 8897 7598) crops have been rotated to a lesser extent, with Winter Wheat (a foraging resource for Brent Geese) planted in most years.

2.18. Evidence would therefore suggest that, in the absence of any scaring measures to control bird use of the land), a foraging resource would have been available for Brent Geese in the southern part of the Application Site, each year in recent times. However, for the northern field this is plainly not the case and such a resource would have been available in less than half of the years.

2.19. Taking a simplistic approach to calculating the loss of Brent Goose foraging habitat, one could assume a loss of 14ha for the southern fields and 3.2ha for the northern field (43/100 x 7.49 = 3.22). This gives a total of 17.2ha.

2.20. A further 1.5ha (approximately) of arable land associated with a field to the south of those described above is located within the Application Site. Crop data has not been made available for this field. In the event that this were regularly planted with Winter Wheat this would give a total of 18.7ha of Brent Goose foraging habitat.

2.21. Of course, this does not necessarily represent a true picture of current or historic Brent Goose use of the land in question. Even where a suitable foraging crop is planted, there will undoubtedly be areas of each field which are not used by the geese, for example close to Pagham Road and Summer Lane where disturbance from vehicles or people will occur, or in the confined corner of the field in the far south (1.5ha). Also, prior to 2011 it may be the case that Winter Wheat was planted less frequently. Furthermore, there are of course no obligations on the landowner to plant any particular crop in the future, thus there would remain an uncertain as to any future value of the land to Brent Geese.

2.22. In calculating the area of (potential) foraging habitat to be lost, properly quantifying the area to be discounted is considered not to be possible in this instance. For clarification, the information available from detailed surveys did not reveal any use of the fields by Brent Geese and so no data is available to show which parts were and which were not used in the context of this issue. Further, information available from third parties does not assist on this point.

2.23. In this instance, in producing an appropriate and proportionate mitigation package, due regard has been had to the above. A precautionary approach has been adopted using the loss of 18.7ha to guide this assessment, but with a firm acknowledgement that a level of discounting ought to be applied.

2.24. The proposed mitigation package is discussed in detail within the following section.

3. MITIGATION MEASURES

3.1. As previously discussed, the precautionary approach adopted uses the loss of 18.7ha of suitable foraging habitat to guide this assessment, but with an acknowledgement that a level of discounting ought to be applied. The measures are also proposed in the light of the fact that currently there is no security regarding the maintenance of foraging resources within the Application Site and also the extent of suitable habitat in the local area, including that within the SPA / Ramsar site itself.

3.2. In coastal locations Brent Geese are most likely to forage on short dense improved grassland swards with a high abundance of Perennial Rye-grass *Lolium perenne* and an area of between 5 and 6 ha, and located 4-5 km along the coast from coastal roosting sites (Vickery and Gill 1999). Evidence also suggests that Clover within a grassland sward represents an important foraging resource (McKay, Milsom, Feare, *et al*. - 2001). In addition, as evidenced from land in the vicinity of Pagham, the species has increasingly taken to grazing on cultivated grasslands and fields planted with winter cereal crops (Scott and Rose 1996).

3.3. The proposed mitigation package can be summarised as follows:

- Securing an area of farmland adjacent to the SPA / Ramsar site which will be managed for the benefit of Brent Geese long term. This area will include grassland and arable habitat of value to Brent Geese;
- Enhancement of this land for Brent Geese through the creation of wetland scrapes and appropriate grassland with suitable management;
- An undertaking to plant Winter Wheat or a Clover dominated cover crop each year, within arable land to the west of the grassland (currently fallow) to maintain winter foraging resources for Brent Geese;
- Removal of specified field boundary vegetation in order to increase sight lines for Brent Geese, enhancing a wider area of habitat for the benefit of Brent Geese;
- Cessation of bird scaring measures currently in place over the winter period, within the habitat enhancement area and the two fields to the north;
- An appropriate management plan will be produced detailing all actions and responsibilities associated with all measures relevant to this mitigation strategy.

3.4. Further detail in relation to the above broad measures is described below.

<u>Habitat enhancement area</u>

3.5. An area of land approximately 5ha in size has been defined for long term enhancement within this mitigation package. This will be managed for the benefit of Brent Geese, delivering a significant enhancement over the current situation. The extent of this land is shown graphically on Plan ECO1.

3.6. Currently, this land comprises land under regular arable cultivation (including occasional Winter Wheat) and land which has been left fallow in recent years, comprising rank wet grassland / ruderal vegetation with a high

proportion of rushes. It is located adjacent to the SPA / Ramsar site boundary which boarders the defined mitigation land to the south and west. This enhanced habitat will therefore be contiguous with the SPA / Ramsar site and is ideally located to deliver proposed mitigation.

3.7. This area is not subject to pressures from recreational impacts. It is not located close to any public rights of way and no public access is currently allowed, nor will it be in the future.

Physical enhancement of the mitigation area

3.8. It is proposed that the fallow land will be over-seeded with a grassland lay comprising a high proportion of Perennial Rye-grass and Clover. In addition, two wetland scrapes will be created in this area to provide fresh water for drinking and bathing, with spoil graded to provide a low bund so as not to impact significantly of geese sight lines.

3.9. Arable land in the west, will continue to be planted with winter cereal crops (Winter Wheat). In the event that a fallow season is proposed, this land will be planted with a Clover rich cover crop to ensure continued Brent Geese foraging habitat is present over the winter period.

3.10. As can be seen from Table 1 above, in recent years the relevant field (SZ 8798 9309) has only been planted with Winter Wheat on an occasional basis (two years out of seven) with Spring Wheat, Spring Barley or Maize planted in the majority of recent years. Thus, the proposals will represent an enhancement over the current situation.

Enhancing sight lines for Brent Geese

3.11. Vegetation management is proposed at specified field boundaries to enhance sight lines for Brent Geese. This will open up the field structure making the relevant fields more suited to use by Brent Geese (which prefer to use large scale, open habitats). Such measures, in tandem with those proposed in respect of scaring (see below) effectively create enhanced habitat over a far wider area than the circa 5ha described above.

3.12. The southern and northern boundaries of the habitat enhancement area will be subject to management aimed at removing elements of scrub. In addition, scrub will be removed from a field boundary associated with fields to the north. In future years, these field boundaries will be managed to maintain a reduced scrub compliment through cutting and / or herbicide treatment as necessary. In the event that herbicide is used to treat stumps only a glyphosate based herbicide (sanctioned for use near watercourses by the Environment Agency) will be used.

3.13. The above measures will result in improved sight lines within approximately 18.5ha of farmed land.

3.14. Also, the management of field boundary vegetation along the southern boundary of the habitat enhancement area will maintain sight lines for geese at this location. Land beyond the southern boundary is part of the SPA / Ramsar site.

3.15. It is not envisaged that all boundary vegetation will be removed, but instead, specific areas will be targeted in order to open sight lines, but also retaining features which can continue to offer foraging, shelter and breeding opportunities for a range of other (e.g. bird) species. It has been agreed with Natural England that the precise detail of this scrub removal will be defined as part of agreeing the detailed management plan which would be conditioned as part of any planning consent granted.

Cessation of bird scaring measures

3.16. It has been agreed with Natural England that it would be appropriate to cease current bird scaring initiatives employed over the winter period on land which forms part of this mitigation proposal.

3.17. It is proposed that all winter bird scaring initiatives will cease in the habitat enhancement area and also, on the two fields immediately north. This lack of scaring will therefore be relevant to a total of approximately 18.5ha of land which is contiguous with the SPA / Ramsar site.

Management plan

3.18. A detailed management plan associated with all prescribed measures will be produced. Such management will be carried out in perpetuity (in practice defined as 80 years as agreed with Natural England).

Considerations regarding indirect impacts on protected species

3.19. In devising the above mitigation scheme, regard has been had to potential implications for other faunal species and these are considered below.

3.20. No field boundary vegetation management is proposed along the rife which runs along the western boundary of the wider mitigation area. It is noted that removal of scrub in this location could have adverse impacts on landscape grounds and possible implications for interest features of the SPA / Ramsar site and SSSI.

3.21. Water Voles are known to be present within the local area. It is possible that Water Voles may be present within the ditch habitat within the wider mitigation area, or that they may colonise in the future. The removal of field boundary scrub habitat will be undertaken in accordance with an agreed management plan and a precautionary approach to such management will be followed such that no burrows would be impacted. The proposed management would in fact represent an enhancement for Water Voles, creating open sunny banks with a more diverse herb element over time.

3.22. Regarding bats, consideration has been given to the potential loss of foraging and navigating resources for bats. In the context of the site and its surroundings, any impacts are considered negligible. Optimal foraging and navigating opportunities will be fully retained at the eastern and western boundaries of the mitigation area and these link with other more mature boundary features in the local area. Any scrub removal (where relevant) will be targeted with a view to retaining opportunities for other species / groups. Further, the creation of a wet grassland area (with scrapes) area will represent an enhancement in terms of foraging opportunities for bats.

3.23. Due regard would be had for the presence of Badgers when undertaking any habitat management initiatives. Removal of scrub, undertaken in line with a methodology described in the management plan would not give rise to an offence under relevant legislation. Damage to any identified setts can easily be mitigated through the use of appropriate tools / machinery and through an agreed approach to the stockpiling and processing of arisings. Any perceived, potential disturbance impacts can be avoided through the use of appropriate machinery and timing of works (including season and duration).

3.24. No adverse impacts are likely to arise in respect of amphibians (including Great Crested Newts). Data search information does not suggest that Great Crested Newts would be present within the mitigation area and the work proposed would not remove terrestrial habitat suitable for use by amphibians in any event. Potential impacts on common reptiles would be avoided through implementation of an appropriate methodology associated with habitat creation on currently fallow land. Undertaking the habitat creation works in a methodical manner, during warm, dry weather would sufficiently limit the possibility of an offence (killing / injury) being committed, should reptiles be present within this habitat.

4. UP-FRONT / CAPITAL WORKS AND SECURING THE MITIGATION

Up-front / Capital Works

4.1. Fine detail will be provided within a relevant management plan but a summary of the proposals is set out below.

4.2. It is proposed that these measures will be delivered ahead of commencement of development.

4.3. *Scrape creation*

4.3.1. Two scrapes will be created within the land which is currently fallow, each with a total area of circa 0.2ha (e.g. 50m x 50m). These will be excavated using machinery and will have a broadly undulating surface to create a mix of wet and dryer conditions, with an element of permanent water.

4.3.2. Excavated material will be graded out to allow the creation of only a low bund around each feature and drier areas which will support grassland communities.

4.4. *Grassland Creation*

4.4.1. Outside of these scrapes, the currently fallow land will be over-sown with an appropriate proprietary seed mix comprising a significant proportion of Perennial Rye Grass and Clover. The following approach to creation and management is considered appropriate:

- Any remaining loose crop or other material removed;
- Excavated material (from scrape creation) spread to create areas less susceptible to water inundation;
- Initial cultivation to encourage seed germination (weed species);
- Second cultivation;
- Broadcast of seed mixture;
- Use of Cambridge Rollers to ensure seed has good contact with seed bed;
- The sward will be topped no lower than 20cm three times during the first growing season;
- Thereafter, cutting will be undertaken in early spring and autumn, avoiding the bird breeding and plant flowering seasons;
- Cutting will be undertaken to maintain a sward height of around 10cm during September and October;
- In order to avoid disturbance of Brent Geese no cutting would be undertaken during the period November – March inclusive; and
- No fertilisers will be applied to avoid implications for adjacent SPA / Ramsar and SSSI habitats.

4.5. *Field boundary management*

4.5.1. Scrub will be removed in line with an agreed management plan and within the areas defined on Plan ECO1. Stumps will be treated with an appropriate herbicide where deemed necessary. Such work will be undertaken with due regard had to the potential for nesting birds to be

present. In preference, the work will be undertaken in the autumn / winter period. However, on the advice of an appropriately experienced ecologist and following specific checks for active nests where necessary, the works could be undertaken outside of this period.

4.5.2. Thereafter, management to maintain areas free of scrub will be delivered in line with an agreed management plan.

4.6. *Scaring*

4.6.1. Scaring initiatives currently employed on land forming part of this mitigation package (see above and Plan ECO1) will cease from the grant of planning permission.

Securing the mitigation measures

4.6.2. As agreed with Natural England, it is considered that it would be appropriate for Arun District Council to apply a Grampian Condition in relation to the Development Proposals in respect of impacts on Brent Geese. Such a condition would prevent commencement of development until such times as all matters of detail concerning Brent Geese mitigation have been fully agreed.

4.6.3. It is considered that it would be appropriate for Arun District Council to apply a planning condition in respect of the fine detail concerning the management of the mitigation land. That fine detail would be agreed with Arun District Council and Natural England (as relevant) during the Reserved Matters stage of the application.

4.6.4. It is proposed that the measures described within this mitigation package will be the subject of a legal agreement (e.g. either a Section 106 obligation or Unilateral Undertaking), which will be agreed at the Reserved Matters stage, to cover a period of 80 years (in perpetuity) from the grant of planning permission. In determining the outline planning application, it is considered that the aforementioned Grampian Condition and conditioning of the management plan, gives sufficient comfort to the Competent Authority (in this instance Arun District Council) that no adverse effect on the integrity of the SPA / Ramsar site could arise.

4.6.5. Should a strategic approach to mitigation be adopted in the future, it may be that the Applicant wishes to agree with Arun District Council (and Natural England as necessary) that reliance can be placed upon that mechanism for mitigation in respect of the Development Proposals, in lieu of the measures described in this report. At this time, it is however proposed that the bespoke measures put forward in this report are to be secured (as appropriate) and delivered in perpetuity.

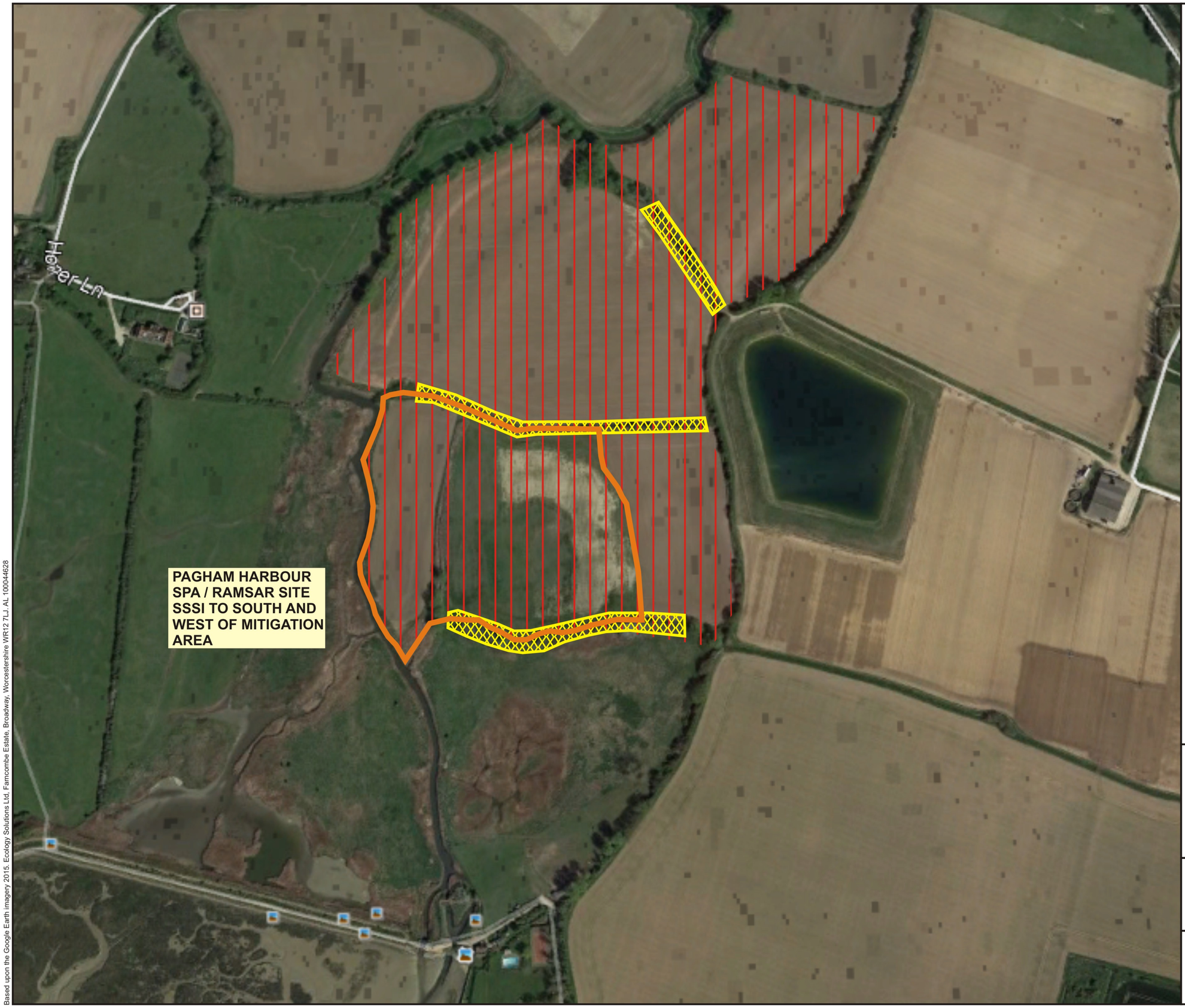
4.6.6. In the light of the precautionary mitigation measures proposed and also the mechanisms by which such measures can be secured long term, it is considered that Arun District Council (as Competent Authority) can be satisfied that the Development Proposals will not give rise to a significant effect on the SPA / Ramsar site when considered both alone and in combination with other plans and projects. A safe consent can therefore be granted.

PLANS & APPENDICES

PLANS

PLAN ECO1

Mitigation Areas Plan



KEY:

MITIGATION AREA WITH GRASSLAND AND WINTER CEREAL CROPS / CLOVER BASED COVER CROP

SCRUB REMOVAL / MANAGEMENT TO ENSURE MAINTAINED SIGHT LINES FOR BRENT GEESE

CESSATION OF WINTER BIRD SCARING INITIATIVES

N

ecology solutions ltd

5633: PAGHAM SOUTH

PLAN ECO 1:
MITIGATION AREAS PLAN

Based upon the Google Earth imagery 2015. Ecology Solutions Ltd. Farncombe Estate, Broadway, Worcestershire WR12 7LJ. AL 100044628

APPENDICES

APPENDIX 1

Letter from Natural England dated 23rd November 2017

Date: 23 November 2017
Our ref: DAS/10802/230714
Your ref: Land S of Summer Lane, Pagham

Karl Goodbun
Ecology Solutions Ltd
Farncombe House
Farncombe Estate
Broadway
Worcs WR12 7LJ

BY EMAIL ONLY

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

Dear Karl

Discretionary Advice Service (Charged Advice)
DAS/10802/230714
Development proposal and location: Housing development on land south of Summer Lane, Pagham, West Sussex

Thank you for your consultation on the above dated 06 November 2017, which was received on the same date. .

This advice is being provided as part of Natural England's Discretionary Advice Service. Ecology Solutions Ltd has asked Natural England to provide advice upon:

- Precautionary mitigation and avoidance measures in relation to loss of brent goose foraging habitat
- Appropriate mechanisms to deliver the mitigation/avoidance measures.

This advice is provided in accordance with the Quotation and Agreement dated 10 November 2017.

The following advice is based upon the information provided at the meeting held on 13 November, including draft maps indicating potential areas for habitat creation. This advice builds on that contained in the letter dated 29 June 2016 (DAS/10802/187760), but does not repeat the advice given previously.

Advice on precautionary mitigation proposals:

- In principle, the location of the proposed habitat mitigation is acceptable, as it is closer to Pagham Harbour Special Protection Area (the SPA) than the Pagham South allocation site. Therefore, if suitable foraging habitat is provided in this location, it should be preferred to the Pagham South site from a goose energetics point of view.
- A combination of wet grassland and arable foraging habitat creation is acceptable, provided that bird scaring techniques are not employed. The arable field should either be in permanent winter cereal cultivation, or with clover introduced into the rotation.
- The wet grassland should be managed to provide optimum foraging habitat for brent geese, by maintaining a scrub-free, relatively short sward (see for example Hassall *et al* 2001[1]). Scrapes should be created to provide permanent standing water, as studies in the Solent have found presence of water to be important. The grassland should be re-seeded, if necessary, with a

[1] Hassall, M; Riddington, R; Helden, A (2001) Foraging behaviour of brent geese, *Branta b. bernicla*, on grasslands: effects of sward length and nitrogen content. Oecologia. Vol. 127. Issue 1. P. 97-104

grassland mix incorporating clover, as this is a preferred food source[2].

- In principle, the proposal to remove scrub and trees from the boundary ditch between the two fields to the north of the proposed habitat creation is acceptable. This will open up the sight lines and potentially make the fields more attractive to brent geese, when they are planted with a suitable crop. However, Natural England recommends that bird scaring techniques are not employed on these fields, to ensure that the work to improve sight lines is effective.
- Advice from my land management colleague is that some light thinning of trees and scrub may be appropriate along the rife, but any more than that would be damaging on landscape and wider biodiversity grounds. Therefore, I recommend sight line work is focussed on the boundary ditch mentioned above.
- The foraging habitat provided should not have access for people or dogs. The habitat proposed is acceptable in this respect as it is not bounded by any public footpaths/bridleways.
- Justification of the area of permanent habitat provided in relation to the area of loss will need to be provided in order for Arun District Council to be able to assess the mitigation proposals. It is Natural England's view that a like for like area is not necessary as the Pagham South site is not planted with a suitable crop every year. For example, if the site is planted with winter wheat one year in three, in principle it could be replaced with an area of permanent habitat a third of the size. However, there will be a minimum field size that will be used by geese and the location of the replacement habitat is crucial. The proposed relatively small area of replacement habitat (though an actual area or ratio of habitat gain to loss was not available at the time of writing this letter) is only acceptable as it is located adjacent to the SPA, with open sight lines towards the SPA, creating a single enlarged area of permanent foraging habitat. In addition, the habitat creation is made acceptable by the inclusion of the suite of measures set out above.
- The package of mitigation measures described above should be provided 'in perpetuity'. In practice, this is being defined as 80 years for the strategic approach to mitigating recreational disturbance. Therefore, the same timeframe should be used for the precautionary foraging habitat mitigation.
- In conclusion, my view is that the package of mitigation measures described above would be sufficient to avoid a likely significant effect on the SPA from the loss of potential foraging habitat as a result of the application to develop on land south of Summer Lane, Pagham.

Advice on delivery mechanisms:

- Arun District Council's advice should be sought on the approach to mitigation being proposed, and on the design of planning conditions to allow the desired flexibility. However, my view is that a Grampian condition to secure the area of habitat creation discussed above would be acceptable.
- At the meeting on 13 November, we discussed the applicant's wish for flexibility in habitat creation, for example the ability to switch from the proposal discussed above, to paying into an alternative area if a strategic approach to providing alternative habitat is put in place. This may be acceptable, provided that Arun DC could devise an appropriate planning condition. However, I am not aware of any other proposals for goose foraging habitat creation that the applicant could contribute to in the foreseeable future. Arun DC will have to assess the acceptability of the mitigation proposed under the Habitats Regulations, therefore, they will have to be certain that the proposals will remove the risk of a likely significant effect on the SPA. As noted above, this certainty is dependent on the location of the habitat provided. Therefore, my recommendation would be to condition the current proposal, and for the applicant to seek a variation in the condition if an alternative became available in the future.
- At the 13 November meeting, we also discussed phasing of mitigation delivery. My view is that

[2] McKay, HV; Milsom, TP; Feare, CJ; et al. (2001) Selection of forage species and the creation of alternative feeding areas for dark-bellied brent geese Branta bernicla bernicla in southern UK coastal areas. Agriculture Ecosystems & Environment Vol. 84 Issue 2 p. 99-113

the alternative habitat should be provided upon commencement of building works, as this is when the impact, ie loss of habitat, occurs. As we do not have survey data showing locations of foraging geese (because the mitigation is being provided on a precautionary basis due to brent goose sightings by local residents), we cannot say that one part of the application site is more important to geese than another. Therefore, it is not possible to say that a particular part of the site can be developed before replacement habitat needs to be provided. As the mitigation measures are relatively simple and straightforward, I would advise carrying them out at or before commencement (subject to seasonal constraints, eg vegetation clearance must be carried out outside the bird breeding season).

- My view is that provided the broad parameters are set out at this stage, and the precise location agreed, a detailed management plan for the mitigation proposals could form reserved matters.

For clarification of any points in this letter, please contact Alison Giacomelli on 0208 225 7693.

This letter concludes Natural England's Advice within the Quotation and Agreement dated 10 November 2017.

commercialservices@naturalengland.org.uk
As the Discretionary Advice Service is a new service, we would appreciate your feedback to help shape this service. We have attached a feedback form to this letter and would welcome any comments you might have about our service.

☒ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

Alison Giacomelli
Specialist Services and Programmes

Cc commercialservices@naturalengland.org.uk

Annex 1
European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's 'How to get a licence' publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's guidance on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

Natural England's pre-submission Screening Service can screen application drafts prior to formal submission, whether or not the relevant planning permission is already in place. Screening will help applicants by making an assessment of whether the draft application is likely to meet licensing requirements, and, if necessary, provide specific guidance on how to address any shortfalls. The advice should help developers and ecological consultants to better manage the risks or costs they may face in having to wait until the formal submission stage after planning permission is secured, or in responding to requests for further information following an initial formal application.

The service will be available for new applications, resubmissions or modifications – depending on customer requirements. More information can be found on Natural England's website.

APPENDIX 2

Information on cropping regimes

Church Barton Farm, Pagham

Cropping 2011 - 2017

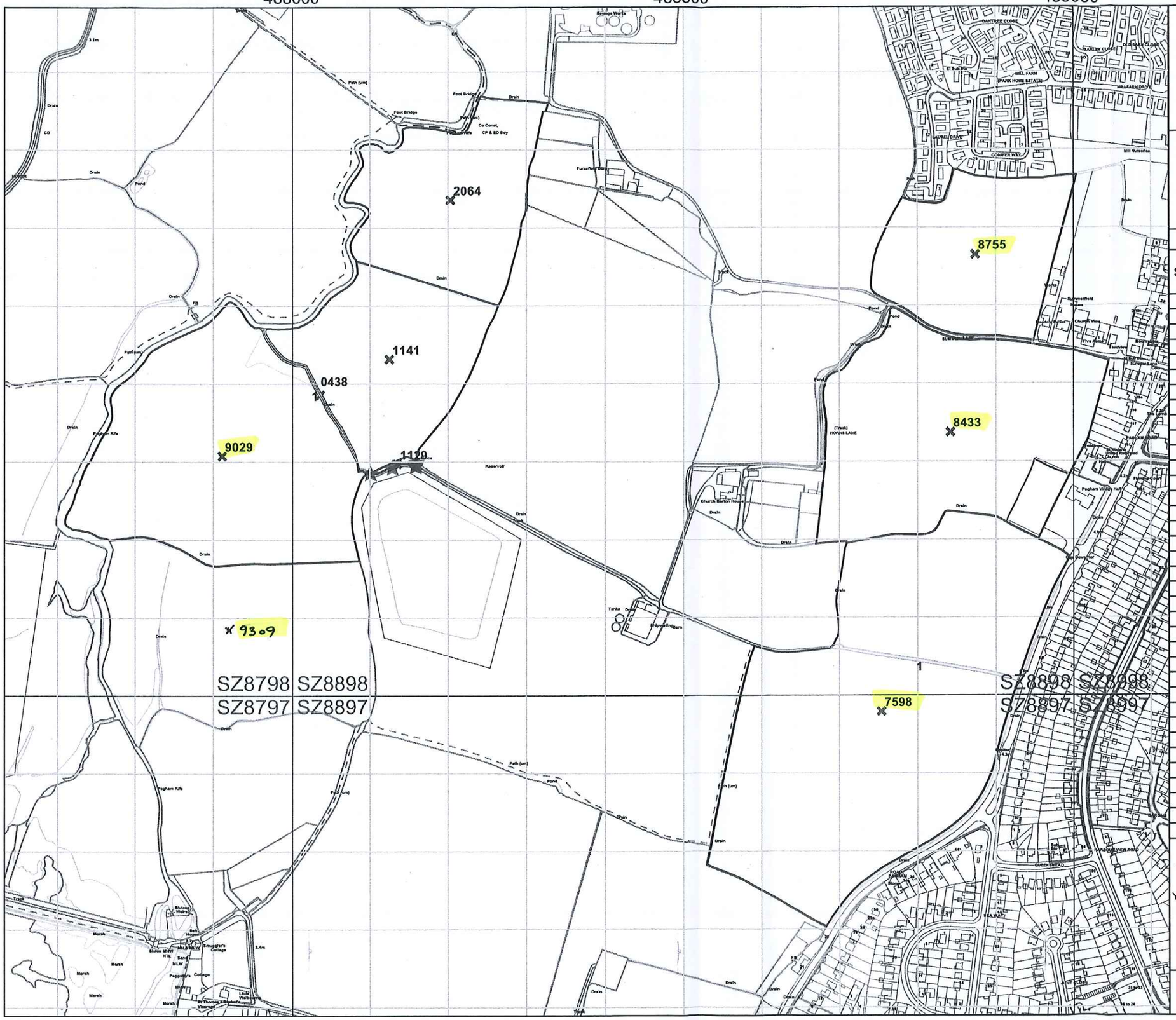
Field	Ha (gross)	2017	2016	2015	2014	2013	2012	2011
SZ 8898 8755	4.08	LET	WW	POT	WW	VEG	MZ	WW
SZ 8898 8433	7.49	LET	WW	POT	WW	VEG	MZ	WW
SZ 8897 7598	14.05	LET	WW/LET	WW/SW/LET	WW/LET	WW/LET	WW/POT	WW/LET
SZ 8798 9309	7.04	WW/FALL	SB/FALL	MZ/FALL	SW/FALL	SW/FALL	SW/FALL	WW/FALL
SZ 8798 9029	8.45	WW	SB	MZ	SW	SW	SW	WW

LET	Lettuces
WW	Winter Wheat
SW	Spring Wheat
FALL	Fallow
SB	Spring Barley
POT	Potatoes
VEG	Vegetables
MZ	Maize

Rural Payments Agency

Rural Land Register (RLR) Map

SBI - 106358007



Legend

- Your RLR Parcel(s)
- SPS Permanent Ineligible Features
- Adjacent Parcel Boundary
- Unconfirmed Boundary

RLR Information

Sheet ID	Parcel ID	Total Area (ha)	SPS Recorded Eligible Area (ha)	English Region
SZ8898	8433	~~7.99~~ 7.49	~~7.99~~ 7.49	N
SZ8898	8755	4.08	4.08	N
SZ8898	0438	0.06	0.00	N
SZ8898	1141	4.32	4.32	N
SZ8898	1129	0.03	0.03	N
SZ8798	9029	8.45	8.45	N
SZ8898	2064	4.44	4.44	N
SZ8897	7598	14.05	13.97	N
SZ8798	9309	7.04	7.04	N

Scale - 1:5000

N W E S 50m 0m 50m 100m 150m 200m

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Date: 16/04/2015

Please return this sheet to us if you want to make any changes to the parcels shown on it.

ARUN DISTRICT COUNCIL P/140/16/CUT