PROPOSED NAVITUS BAY WIND PARK

PRELIMINARY ENVIRONMENTAL INFORMATION 3

CHAPTER 28
ONSHORE ORNITHOLOGY

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21. ONSHORE ORNITHOLOGY

21.1. Introduction

21.1. This chapter assess the potential impacts on birds arising from the construction, operational and maintenance ('O&M') and decommissioning phases of the onshore elements of the proposed Navitus Bay Wind Park ('the Project'). This chapter should be read in conjunction with Chapter 2, Navitus Bay Wind Park Project.

21.2. For the purpose of this assessment, the Onshore Development Area comprises the following project elements: the cable landfall, a 35km onshore cable and associated accesses, temporary compounds and an onshore substation.

21.3. Potential impacts on birds using the marine environment and those on migration are addressed in Chapter 12, Offshore Ornithology.

21.2. Legislation, Policy and Guidance

21.4. This section outlines the legislation, policy and guidance that are relevant to the assessment of the potential impacts on ornithology associated with the Project.

21.2.1. International

21.5. The international legislation, agreements and conventions relevant to the Project include:

- United Nations Convention on Biological Diversity 1992 ('the Rio Convention');
- The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (The Ramsar Convention 1971);
- European Council Directive 2009/147/EC on the conservation of wild birds ('the Birds Directive');
- European Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora ('the Habitats Directive'); and
- The Convention on the Conservation of European Wildlife and Natural Habitats 1979 ('the Bern Convention').

21.2.2. National

21.6. The Overarching National Policy Statement ('NPS') for Energy ('EN-1'), in conjunction with the NPS for Renewable Energy Infrastructure ('EN-3') and NPS for Electrical Networks Infrastructure ('EN-5'), provides the primary policy framework within which the Project is assessed.

21.7. Table 28.1 provides a summary of the relevant provisions in EN-1, EN-3 and EN-5 with regard to the onshore ornithological assessment, and how they have been considered within this chapter.

Table 28.1 Compliance with National Policy Statements

Summary of NPS provision	Consideration within PEI
NPS EN-1; Part 5.3	
Paragraph 5.3.3 states that *"Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity."*	This chapter provides an assessment of internationally, nationally and locally designated sites of ornithological importance (sites designated for other ecological importance features are addressed in Chapter 27, Terrestrial and Freshwater Ecology). Potential effects on individual bird species are considered within this chapter.
Paragraph 5.3.4 states *"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests."*	The ES will provide further detail on measures taken to conserve and enhance biodiversity interests.

Table 28.1 Compliance with National Policy Statements	
Summary of NPS provision	Consideration within PEI
NPS EN-3; Part 2.6	
Paragraph 2.6.65 states *"Consultation on the assessment methodologies should be undertaken at early stages with the statutory consultees as appropriate."*	Consultation with Natural England ('NE') has been undertaken throughout the pre-submission of the PEI, see Table 28.2.
NPS EN-5;Part 2.7	
Paragraph 2.7.2 states that *"Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds."*	This chapter considers the potential effects associated with the construction, O&M and decommissioning phases of the onshore infrastructure of the Project.

21.8. National legislation and policy that is relevant to the Project includes:

- Conservation of Habitats and Species Regulations 2010 (as amended, 2012) ('Habitats Regulations');
- Natural Environment & Rural Communities Act 2006 ('the NERC Act');
- Countryside and Rights of Way Act 2000 ('CRoW');
- Wildlife & Countryside Act 1981 (as amended) ('WCA');
- National Planning Policy Framework 2012 ('NPPF').

21.2.3. Regional and local

21.9. Regional and local policies that are relevant to the Project and ornithological issues are captured in local planning documents, notably:

- New Forest District (outside the National Park) Core Strategy;
- Bournemouth, Dorset and Poole Structure Plan;
- Hampshire Local Biodiversity Action Plan;
- Dorset Local Biodiversity Action Plan.

21.2.4. Guidance

21.10. The following guidance and best practice documents have informed the preparation of this chapter:

- Government Circular 06/05 Biodiversity and Geological Conservation ('Government Circular 06/05');
- UK Post 2010 Biodiversity Framework ('Biodiversity Framework');
- Defra (2012). Biodiversity 2020: A strategy for England's wildlife and ecosystem services;
- Defra (2002). Working with the grain of nature: A biodiversity strategy for England;
- Institute of Ecology and Environmental Management ('IEEM' – now the Chartered Institute of Ecology and Environmental Management ('CIEEM')) Guidelines for Ecological Impact Assessment in the United Kingdom (2006).

21.3. Assessment Methodology

21.3.1. Study area

21.11. The study area for the on-going Phase 1 habitat survey identifies habitats suitable for breeding and wintering birds, and comprises a broad corridor (see Figure 27.1 in Chapter 27) along the Onshore Cable Corridor, the Onshore substation site and also includes the Landfall point) that encompassed the potential areas through which the cable could be routed; this area is referred to within this chapter as the 'Phase 1 survey area'. The desk study (see Baseline Gathering Methodology) focused on the examination of records of bird species and designated sites of importance to birds, within the Phase 1 survey area and an additional 1.5 km wide buffer zone around it. Professional judgement, including experience of the types of ornithological impacts that may arise from transmission cable and pipeline development, was used to determine this 1.5km wide buffer zone. The width of the buffer zone was agreed with NE, Table 28.2.

21.12. Wintering bird surveys have been undertaken within a Phase 1 survey area as the cable route had not been refined at the time of survey. As the design of the Project has evolved the cable corridor has been reduced to better reflect potential areas through which the cable could be installed. The

breeding bird surveys are being undertaken within the Onshore Development Area and an additional 80 m survey buffer; resulting in a survey area 200 m wide, see Figure 28.1. This area is referred to as the 'breeding bird survey area' within this chapter.

21.13. At the time of producing the PEI, some areas along the route have not yet been accessed to carry out bird surveys, which are presented in Figure 27.1 as unsurveyed. Discussions are on-going with NE regarding these difficulties with accessing certain areas of private land for survey. Efforts continue with the relevant landowners to agree or obtain access to complete surveys so that the results can be incorporated in the Es that will form part of the application for development consent.

21.3.2. Consultation

21.14. This section provides information on the consultations undertaken to date to inform the assessment of ornithological receptors within the terrestrial environment. Advice and information provided by the consultations shaped both the assessment methodology and the scope of the assessment. The organisations consulted and the main topics of each contact are provided in Table 28.2.

21.15. Mitigation measures are being identified in discussion with relevant statutory consultees which will seek to minimise predicted impacts.

Table 28.2 Consultation response		
Organisation and date	Summary of response	Consideration within Project
Scoping response		
Infrastructure Planning Committee ('IPC') (Scoping Response October 2011)	Cumulative impacts should be assessed and appropriate mitigation measures identified in the ES. The potential for cumulative effects on birds should not be limited to other wind farm projects but all other plans and projects.	Cumulative impacts will be considered (including migratory birds) in the Environmental Statement that will form part of the application for development consent.
Natural England ('NE') (Scoping Response October 2011)	Consideration of statutory sites and their designated features should be fully considered – including international, national and local designations. Where sites overlap (*e.g.* where Sites of Special Scientific Interest ('SSSI') are also Special Protection Areas ('SPA')) an assessment should be made of each designation.	Sites designated for ornithological interest are considered within this chapter with regard to onshore impacts associated with the Project. Potential impacts on sites designated at the international level will be assessed in the Habitats Regulations Assessment Screening Report (2013) and the Habitat Regulations Assessment Report (2013) that will form part of the application for development consent.
	Where works cannot reasonably be avoided in a statutory site or in the surrounding hydrological catchment that supports a wetland or water feature, the EIA must outline the precise route of the cables and extent of any other works.	The Onshore Development Area, as it crosses designated sites, represents the working area for the Project. The assessment within this chapter is based on the Project as described in Chapter 2.

Table 28.2 Consultation response		
Organisation and date	Summary of response	Consideration within Project
	Open trenching works within designated areas can result in irreversible loss or long term degradation of habitat and hence damage to interest features. In contrast, Horizontal Directional Drilling may avoid these impacts completely.	Trenchless crossing techniques would be used in certain locations to reduce the impact of cable installation on the environment (including designated sites). However, in certain areas it has not been possible to enable designated sites to be crossed by trenchless techniques. The impacts associated with these activities are assessed within this chapter (with regard to onshore ornithology) in the Impact Assessment section.
	The Secretary of State has published a list of Biodiversity Action Plan habitats and species of principal importance for the purpose of conserving biodiversity (Section 41 of the NERC Act 2006). The legislative requirements on public bodies towards biodiversity under the NERC Act will be relevant in assessing significance of impact.	Birds that have been identified during the survey programme are evaluated within this chapter. The occurrence of a species on the Section 41 list is considered within the evaluation process.
Section 42 responses to preliminary environmental information		
NE (letter 27/07/12)	No net loss of biodiversity should result from the proposal and, efforts should be made to ensure a biodiversity gain. The potential for disturbance of breeding waders or water fowl in the Avon Valley should be considered at the point at which the cable is proposed to cross.	Measures designed to ensure no net biodiversity loss and to provide biodiversity gains where possible will be outlined in further detail in the ES. An assessment of the potential impacts on the bird community of the River Avon is provided in this chapter, alongside details of potential mitigation measures. Refer to the Impact Assessment section for details.
Dorset County Council ('DCC') (letter 27/07/12)	The effects of increased recreational usage of designated heathland sites during the construction of the onshore cable should be considered with respect to ground nesting birds.	Refer to the Impact Assessment section for details.

Table 28.2 Consultation response		
Organisation and date	Summary of response	Consideration within Project
Christchurch Borough Council ('CBC') (Letter 27/07/12)	The effects of increased recreational usage of designated sites during the construction of the onshore cable should be considered with respect to ground nesting birds.	Refer to the Impact Assessment section for details.
Royal Society for the Protection of Birds (RSPB) (Letter 30/07/12)	RSPB noted that they had not been involved in detailed discussions regarding the onshore ornithology programme but did note that they support Natural England's views. Construction works within the River Avon valley and the Dorset Heathlands were flagged as being of concern.	The survey methods and data gathered during the pre-application consultation to date have been discussed with RSPB. It has been agreed that the methodology and survey effort, that inform this assessment, are adequate. The potential impacts on the River Avon and Dorset Heathlands are considered within this chapter with regard to impacts associated with the Project.
Hampshire & Isle of Wight Wildlife Trust ('H&IoWWT') (Letter 30/07/12)	The NPPF highlights the importance of seeking net biodiversity gains from development projects. The Project proposals should demonstrate where biodiversity gains may be made and how these can be achieved.	Measures designed to ensure no net biodiversity loss and to provide biodiversity gains are being agreed through on-going consultation with statutory consultees and details will be provided in the ES.
Dorset Wildlife Trust ('DWT') (Letter 30/07/12)	An Ecological Clerk of Works is required who will provide on-site support and advice to contractors and ensure impacts on biodiversity are minimised, sensitive working practices are implemented and biodiversity gains made wherever possible.	An Ecological Clerk of Works ('ECoW') would be retained during the construction of the onshore infrastructure. Measures designed to ensure no net biodiversity loss and to provide biodiversity gains will be presented in detail in the ES.

Table 28.2 Consultation response		
Organisation and date	Summary of response	Consideration within Project
Other consultations		
NE (Meeting 09/03/11)	The Project was introduced to NE and proposed first phase surveys discussed. The potential for impacts on the habitats within the Dorset Heaths were discussed. In principal it was agreed that construction activity in the area was possible due to heathlands ability to regenerate. Issues regarding the birds dependent on this habitat would however, have to be considered. It was noted that the best time to work in this area was likely to be over the winter period.	Refer to the Impact Assessment section for details.
NE (Meeting 18/07/11)	A project update was provided and interim survey results (of habitats) presented. NE stated that designated sites, including the River Avon and the Dorset Heathlands should be avoided wherever possible. It was noted that breeding waders are known to be present on the River Avon (but to the south of the proposed crossing point) and that Dartford warbler and nightjar are known to be present in Hurn Forest and other heathland/wooded heathland areas outside of designated sites.	Designated sites have been avoided wherever possible during the design phase. Refer to the Impact Assessment section for details.
DWT (Meeting 05/09/11)	DWT were provided with an update of the project and the results of initial surveys were communicated. It was noted that wherever possible statutory and non-statutory sites should be avoided.	There are no non-statutory sites designated specifically for bird populations within or adjacent to the onshore elements of the Project. Refer to the Impact Assessment section for details.
NE (Meeting 23/09/11)	The proposed wintering bird surveys were outlined to NE. It was agreed that (outside of the River Avon) there were unlikely to be any significant impacts associated with wintering birds. The evolving cable corridor and substation locations were introduced and discussed.	The Onshore Cable Corridor, Landfall and Onshore Substation location has been informed by discussions with NE and other consultees.

Table 28.2 Consultation response		
Organisation and date	Summary of response	Consideration within Project
DWT (Letter 16/12/11)	DWT provided their views on the range of potential substation sites.	The Onshore Substation location has been informed by consultation with DWT and other consultees.
NE (Meeting 21/03/12)	Method statements for proposed ornithological surveys were provided to NE in advance of the meeting and subsequently discussed. NE suggested that the number of survey visits and extent of the nightjar survey be increased – they were content with the standard breeding bird survey methods.	The breeding bird surveys have been undertaken, in accordance with discussions with NE. Nightjar surveys are being undertaken, in accordance with discussion with NE.
DWT (Meeting 19/07/12)	A Project update was provided to DWT and the interim survey results presented. Potential impacts and mitigation were discussed.	Refer to the Scope of Assessment section for details.
H&IoWWT (Meeting 06/08/12)	A Project update was provided to H&IoWWT and the interim survey results presented. Potential impacts and mitigation were discussed.	Undergoing surveys are undertaken in accordance with methodologies discussed in the Methodology section of this chapter.
NE (Meeting 23/10/12)	The onshore ornithology survey programme was presented. NE did not identify any significant issues regarding either the methodology or results. It was noted that the potential impacts on nightjar needed to be considered as a priority, although for the onshore works phasing of the construction process was likely to ensure significant impacts could be avoided. The potential for impacts on migrating nightjar were highlighted.	Refer to Chapter 12 for details of the assessment undertaken in respect of migrating nightjar. Surveys for nightjar, and other breeding bird species, are currently being undertaken in heathland habitats to provide a robust baseline dataset for the ES.
DWT and Royal Society for Protection of Birds ('RSPB') (Meeting 16/11/12)	Background on survey methodologies and results of the onshore ornithological survey programme was discussed. DWT and RSPB agreed in principal that the survey programme appeared suitable.	The survey programme is being undertaken following the methodologies discussed with relevant consultees.
NE (Meeting 03/05/13)	Further surveys to be undertaken in 2013 were outlined to cover heathland birds (including nightjar) and those breeding within the habitats adjacent to the River Avon. It was agreed that the proposed survey programme covered outstanding data gaps.	Survey work is currently being completed and the findings have informed the assessment detailed within this chapter.

21.3.3. Scope of the assessment

21.16. A Scoping Report was submitted in September 2011 for the Project to the IPC (now the Planning Inspectorate). The IPC issued a Scoping Opinion in November 2011; this included comments from various stakeholders.

21.17. The IPC, NE, East Dorset District Council, West Dorset District Council, New Forest National Park Authority and Lyndhurst Parish Council (in a separate response) all highlighted the necessity of undertaking an assessment of the potential impacts on ecology and nature conservation within the onshore environment. The IPC and NE raised points specifically regarding potential ornithological impacts associated with the onshore electrical transmission infrastructure.

21.18. The potential for impacts on designated sites (both statutory and non-statutory) were highlighted in the Scoping Opinion. Particular reference was made to the Avon Valley SPA/Ramsar site and the Dorset Heathlands SPA.

21.19. Outside of designated sites the issues raised with regard to impacts on birds in the onshore environment were:

- The potential impacts of noise and vibration on breeding birds;
- The potential disturbance of nightjar (*Caprimulgus europaeus*) due to changes in recreational pressure caused by disruption of footpaths;
- Damage to habitats used by birds due to the deposition of dust.

21.20. The scoping responses, and other consultations (for example those following the publication of previous Preliminary Environmental Information reports), were taken into account in the preparation of the ornithological baseline and the assessment presented within this chapter. The specific issues addressed include the loss of habitat to birds, the potential disturbance/displacement of birds and issues regarding legal compliance.

21.21. The surveys and assessment are on-going and therefore there will be further consultation to discuss the findings and where necessary the most appropriate mitigation required. Therefore in the remainder of the chapter, the predictions of impacts are preliminary and are necessarily high-level. Impact levels are therefore set out on a precautionary basis at this stage.

21.3.4. Issues scoped out

21.22. Impacts may result from a variety of activities and mechanisms at each of the development phases. Three development phases have been identified for the Project. These are construction, O&M and decommissioning phases.

21.23. From the baseline descriptions ornithological features are identified for which an impact assessment is considered necessary. Features may be single species or groups of species to which the same impacts apply. Certain ornithological features can be scoped out as not requiring an impact assessment because they are of low conservation value, impacts are avoided by embedded mitigation or there is no identified effect pathway. Scoping out of features for which an impact assessment is not required is discussed in the following paragraphs. Features which are scoped in may not require an impact assessment for all development activities.

21.3.5. Impact assessment methodology

21.24. The methods used to evaluate the ornithological features being identified through the desk study, breeding bird survey, nightjar survey and wintering bird survey are based on the Institute of Ecology and Environmental Management ('IEEM' – now Chartered Institute of Ecology and Environmental Management ('CIEEM')) 'Guidelines for Ecological Impact Assessment in the United Kingdom' (2006).

Evaluating the importance of the ornithological features

21.25. The results of the baseline surveys will be used to identify important ornithological features within the survey area. The nature conservation value of each of the features identified to date is outlined in the Baseline Environment section.

21.26. The methods used in the evaluation follow the CIEEM guidelines to determine the conservation value of an ecological feature within a defined geographical context using the following geographic scale:

- International;
- UK;
- National (i.e. England);
- Regional (i.e. southern England);

- County;
- Local;
- Within the zone of influence only.

21.27. In this assessment the zone of influence is considered to be the area occupied by a particular feature of the onshore elements of the Project.

21.28. The criteria for nature conservation evaluation are based on the CIEEM guidelines and Ratcliffe (1977) and include: primary criteria of native status, rarity, level of threat and proportion of total; and secondary criteria of history of presence, links to other populations, cultural interest/aesthetic appeal and economic importance. The potential impacts of the development are not considered at the evaluation stage.

21.29. Bird species may be listed as rare, threatened or of conservation concern on published lists (e.g. NERC Section 41 list) or provided with legal protection (e.g. through the WCA). These listings or legal protection can imply a level of conservation value on the geographical scale. However, it is the status of the receptor present within the survey area or Onshore Development Area that is evaluated within this chapter. The conservation value conferred on each receptor recorded during the surveys is guided by, but likely to differ from, that given in Table 28.3. For example, an exceptionally large aggregation of a species listed on the BoCC Green List may be considered to be of greater than local conservation value or a single record of a species listed on Annex 1 of the Birds Directive may not be considered to warrant an evaluation of international importance.

Table 28.3 Published lists used in the evaluation

List	Level of importance
Species listed on Annex I of the Birds Directive Designated features of SPA/Ramsar sites Species occurring in numbers representing in excess of 1% of the international population	International
Species listed on Schedule 1 of the WCA Species on the BoCC Red List Species of principal importance in England (NERC Section 41 List) Cited features of SSSIs Species occurring in numbers representing in excess of 1% of the national population	National/UK
BoCC Amber List	Regional
Species noted on the Dorset or Hampshire Local BAP Species occurring in numbers estimated to represent in excess of 1% of the county population	County
Species listed on BoCC Green List Other common and widespread species.	Local or within the zone of influence

Significance of Impact

21.30. An impact assessment is undertaken for all ornithological features which have not been scoped out. At this stage the assessment considers the impacts without additional mitigation; however embedded mitigation is taken into account. Embedded mitigation is mitigation that is built into the development design and additional mitigation is added after the impact assessment to reduce any identified impacts. Impacts can be positive or negative and are defined as Significant or Not Significant at a particular geographical level. An impact may be observable but Not Significant. Following CIEEM guidance, an ecologically Significant impact is defined as an impact on the integrity of a designated site or the conservation status of a habitat or species within a given geographical area. If an impact is not likely to have an adverse effect on the favourable conservation status of any bird species or population, or stop recovering species from reaching favourable conservation status, then it is not considered Significant.

21.31. For bird species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area. The

known distribution, abundance and likely trends and variations in population size are considered.

21.32. Following CIEEM guidance, impacts are characterised using the following parameters:

- Magnitude – refers to the 'size' or 'amount' of an impact, determined on a quantitative basis, if possible;
- Extent – the area over which the impact occurs (may be synonymous with magnitude when the feature is a habitat);
- Duration – the time for which the impact is expected to last prior to recovery or replacement of the feature;
- Reversibility – an irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) impact is one from which spontaneous recovery is possible or for which effective mitigation is both possible and an enforceable commitment has been made;
- Timing and frequency – the timing of an impact that coincides with critical life stages or seasons and the number of times the impact is repeated.

21.33. The likelihood of an impact occurring is given with each assessment based on the four-point CIEEM scale:

- Certain/near certain – probability estimated at 95% chance or higher;
- Probable/likely – probability estimated between near-certain and 50:50;
- Unlikely – probability estimated less than 50:50 but higher than 5%.

21.34. Extremely unlikely – probability estimated at less than 5%.The use of the CIEEM guidance within this assessment has been followed as it represents current best practice for ecological assessments within the UK. However, in order to ensure that both the terminology used and the understanding of stakeholders is consistent between technical assessments, the final conclusions will note whether the impacts are of major, moderate or minor Significance or are negligible, see Chapter 3, EIA Methodology.

21.35. Only conclusions of major and moderate Significance are deemed to represent likely significant impacts with regards to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended). The use of these terms will be determined following the conclusion of the assessment process as outlined above.

21.36. For the purposes of this assessment ornithological features with a local or lower conservation value are not considered within the impact assessment as the nature of the works is such that significant impacts, in terms of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended), would not be realised.

21.3.6. Limitations and Assumptions

Limitations and assumptions

21.37. The Onshore Development Area site had not been finalised at the time that the surveys were undertaken and there was no access consent to survey a part of the route (shown as 'no access to survey' on Figure 28.1). Consequently not all areas within the Onshore Development Area were included in the current ornithological surveys. Habitat information within the areas not surveyed was ascertained from the desk study, maps and aerial photographs; the habitats present are similar to those in areas that were surveyed, and therefore it is assumed that a similar bird community is present. For this reason, the fact that complete survey coverage was not possible is only considered a minor limitation.[1]

Embedded mitigation

21.38. The assessment within this chapter takes into account mitigation measures that have been incorporated in the Project at this stage as part of the design process, and other measures that are considered standard practice within the construction industry. Together these measures are termed 'embedded mitigation'. In some instances, embedded mitigation is sufficient to prevent any significant impacts from occurring. Embedded mitigation is distinct from additional mitigation which is applied following the

[1] Further survey in 2013 will provide information on habitats present within the areas where no bird surveys have been undertaken due to access issues. This information will be used to characterise the local bird population within the ES chapter.

identification of potentially significant impacts. The embedded mitigation measures that are directly relevant to ornithological receptors are:

- Route design - the siting of the Onshore Cable Corridor has avoided (wherever possible) statutory and non-statutory designated sites, woodlands, heathland and other sensitive habitats (the location of sites designated for nature conservation are shown on Figures 28.2, 28.3 and 28.4);
- Trenchless techniques for cable installation - the use of trenchless techniques are proposed to avoid or minimise impacts on ancient woodlands, heathland habitat on the West Moors MOD site (part of Dorset Heathlands SPA) and the River Avon (part of the Avon Valley SPA and Ramsar site) by reducing the amount of surface disturbance required to install the transmission cables;
- The working area – when the Onshore Cable Corridor would cross hedgerows and water courses, habitat loss will be minimised where feasible. Habitats would be restored in line with consultation from NE and with relevant landowners;
- Open trenching works would primarily be undertaken between the months of March and October. In some areas open trenching may take place outside of this period, however this would be agreed prior to work commencing with NE;
- The Environment Agency's Pollution Prevention Guidelines would be followed during all works (including dust suppression measures) to minimise damage to habitats and/or food resources used by associated fauna and to prevent direct toxic effects on individual animals.

21.39. This assessment also considers embedded mitigation measures described in Chapter 27, Terrestrial and Freshwater Ecology. The measures relevant to ornithological receptors include:

- Habitat restoration would be undertaken following completion of cabling installation works in each section (i.e. between joint bays). Habitats would be restored in line with consultation from NE and with relevant landowners;
- Where the Onshore Cable Corridor crosses a sensitive feature, direct impacts would be minimised where feasible.
- Where areas of woodland (other than coniferous plantation) are to be felled, restoration work post-construction would consider re-planting outside of the permanent cable easement. The permanent easement would be restored to form a woodland ride, and designed to provide 'edge' features to enhance their ecological interest. This reinstatement would be agreed with NE and the relevant landowner;
- Creation of planted trees adjacent to the Onshore Substation;
- Further pre-construction ecological and protected species surveys would be undertaken prior to the construction works;
- Where necessary, mitigation measures would be identified, in discussion with relevant statutory consultees, would seek to minimise predicted impacts. Further details of the embedded mitigation to be adopted (such as associated with the construction techniques and approach) will be included within the ES.

21.40. It is anticipated that with this agreed embedded mitigation the potentially significant effects identified for the Project could be minimised or avoided.

21.41. An Ecological Mitigation and Management Plan (EMMP) will also form part of the application for development consent. It would include details of the commitments and controls that would be adopted during construction and operation.

21.4. Baseline Environment

21.42. The following section details the baseline data gathering methodology for the assessment, data sources used and survey methodology undertaken to date.

21.4.1. Baseline data gathering methodology

21.43. The existing status of bird populations along the Onshore Cable Corridor has been determined by undertaking a desk study, extended Phase 1 habitat survey, wintering bird survey, a breeding territory mapping survey (referred to in this chapter as the breeding bird survey) and a nightjar survey with the results summarised within this chapter. The main objective of the bird surveys is to provide ornithological baseline data to inform an impact assessment for the construction, O&M and decommissioning phases of the infrastructure associated with the Project.

Data sources

21.44. Table 28.4 provides information on the organisations (and publications from relevant organisations) from which relevant contextual information was requested. The information gathered was used to determine the tasks undertaken to inform the site-specific baseline (e.g. the survey programme) and to inform the assessment.

Table 28.4 Desk study data sources

Source	Methods
Hampshire Biodiversity Information Centre ('HBIC')	Records of notable bird species and sites designated for their ornithological importance were requested from HBIC within 1.5 km of the Phase 1 survey area. All data requested was provided.
Dorset Environmental Records Centre ('DERC')	Records of notable bird species and sites designated for their ornithological importance were requested from DERC within 1.5 km of the Phase 1 survey area. All data requested was provided.
Hampshire Bird Report (2010)	The Hampshire Ornithological Society provided a report detailing the status of species recorded in Hampshire along with information on specific sightings and co-ordinated surveys.
Dorset Bird Report (2009)	The Dorset Bird Club provided a report detailing the status of species recorded in Dorset along with information on specific sightings and co-ordinated surveys.
Isle of Wight Bird Reports (2009 and 2010)	The Isle of Wight Ornithological Group provided reports detailing the status of species recorded in Isle of Wight along with information on specific sightings and co-ordinated surveys.
The Birds of Dorset (2004)	The most recent county avifauna for Dorset was obtained.
Birds of Conservation Concern 3 (Eaton et al. 2009) ('BoCC').	The BoCC red and amber lists provide a tool for guiding conservation action for birds in the UK. They identify species that are vulnerable due to restricted ranges or have experienced historic/ongoing declines in population. This document was obtained from the British Trust for Ornithology ('BTO').

Survey Methodology

21.45. Table 28.5 provides a summary of the field surveys undertaken to inform the assessment.

Table 28.5 Field survey summary[2]

Source	Methods
Extended Phase 1 habitat survey undertaken in August 2011	An extended Phase 1 habitat survey of a wide search area, including the current Onshore Cable Corridor and Onshore Substation, was undertaken following standard methodology (JNCC 2007). Areas that have the potential to support breeding and/or wintering birds will be highlighted.
Onshore wintering bird survey undertaken between November 2011 and March 2012	Vantage point surveys of the Avon River Valley were undertaken alongside transect surveys within Hurn Forest and West Moors Plantation; a stretch of coastline of approximately 1 km in length, running along Barton and Hordle cliff was also monitored. A driving survey to cover the remainder of the survey area was undertaken. The survey method was agreed as suitable with NE.

[2] Further ornithological surveys are currently being undertaken to provide further information on the distribution of breeding heathland birds (including nightjar). The results of these surveys will be added to the ES chapter.

Table 28.5 Field survey summary[2]	
Breeding bird survey undertaken between April and July 2012	The survey covered the entire length of the proposed cable route, where access was available. A 200 m wide corridor was surveyed, including land within the Onshore Development Area and an additional 80 m buffer each side. The survey methodology adopted was based on the BTO's Common Bird Census territory mapping technique (Gilbert *et al*., 1998). Five survey visits were undertaken; during each visit, the location, species, sex, age and behaviour of every bird seen/heard was recorded within the survey area. The survey method was agreed as suitable with NE, see Table 28.2.
Nightjar survey undertaken by Thomson Ecology between 11/04/12 and 05/07/12.	A nightjar survey was undertaken at three sites with suitable nesting and foraging habitat, for this species, along the proposed cable route. These areas were Hurn Forest, West Moors Plantation and West Moors Ministry of Defence ('MOD') site. The survey methods followed those outlined in Gilbert *et al*. (1998). The survey method was agreed as suitable with NE, see Table 28.2.

404000 407000 410000 413000 416000 419000 422000 425000 428000 431000

104000 101000 98000 95000 92000

New Forest

Mannington
Holt Heath
Ashley Heath
Ringwood
Hangersley
Picket Post
A31(T)
St Ives
Burley Street
Broom Hill
West Moors
St Leonards
Avon Castle
Kingston
Burley
Bisterne Close
Ralmerdawn
Brockenhurst
B3055
Bisterne
B3071
Stapehill
Tricket's Cross
Setley
Ferndown
Ripley
Thorney Hill
B3058
Hampreston
A348
Longham
A347
Parley Cross
Avon
Sway
Bransgore
Woottton
Tiptoe
Bashley
West Parley
A341
Bearwood
Kinson
Ensbury
Hurn
A338
Sopley
Neacroft
B3347
Winkton
Hinton
New Milton
Hordle
Moordown
A3060
Throop
B3063
Burton
A337
Highcliffe
Everton
Winton
Barton on Sea
Downton
Newtown
A3040
A347
A3049
Pokesdown
A35
Christchurch
B3059
Mudeford
Lymore
Milford on Sea
Branksome
B3061
Bournemouth
Boscombe
Southbourne
Wick
Keyhaven
B3064
B3066

0 1 2 3 4 km

Legend

- Onshore Development Area
- Study Area / Wintering Bird Survey Boundary
- 2012 Breeding Bird Survey Boundary
- No Access to Survey in 2012

Scale @A3 1:75,000	**Coordinate System:** British National Grid	N
Date: 10/08/2013	**Datum:** OSGB 1936	
Ref. No.: 11774	**Data Source** Thomson Ecology Survey: FENC102/006/001	
Fig. No.: Figure 28.1		
Author: NS		
Rv.No.: 01	**Checked:** TD	**Approved:** PF

Navitus Bay Development Ltd

Onshore Cable Route Bird Survey Boundaries

NAVITUSBAY

21.4.2. Background

21.46. HBIC and DERC provided records of bird sightings which included a total of eight bird species of nature conservation interest within 1.5 km of the wide study area. These were: barn owl (*Tyto alba*), Dartford warbler, hobby (*Falco subbuteo*), nightjar, lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*), woodlark (*Lullula arborea*) and yellowhammer (*Emberiza citrinella)*.

21.47. The extended Phase 1 habitat survey area supports suitable habitat for a variety of breeding and wintering birds. Habitat features considered to provide good breeding habitat were woodlands, hedgerows and heathland. The habitats assessed as having the highest potential for birds over-wintering in the area were the River Avon valley and arable fields in close proximity to the coast (as foraging resources for wildfowl and waders).

21.48. Seventy-six bird species were recorded during the breeding bird survey, 70 species of which were probably breeding. Of those species defined as probably breeding, a number of species are listed under: Schedule 1 of the WCA (one species); as species of principal importance under Section 41 of the NERC Act (18); as local BAP species for Hampshire and Dorset (13 and 32 species respectively); or are included on the red (16 species) or amber lists (20 species) of BoCC.

21.49. Results of the wintering bird survey showed that the Avon River valley is an important area for wintering birds. Observations of waders, wildfowl and raptors in the Avon valley were numerous including species such as Bewick's swan (*Cygnus columbianus bewickii*), hen harrier (*Circus cyanus*) and merlin (*Falco columbarius*). Wildfowl and waders were present feeding and roosting within the river valley, whilst raptors were hunting along its course. The rest of the cable route contained smaller numbers of wintering birds, including dark-bellied Brent geese (*Branta bernicla bernicla*), curlew (*Numenius arquata*) and golden plover (*Pluvialis apricaria*); these species were noted feeding in fields close to the Onshore Cable Corridor. Bird species with a nature conservation value of County or higher are listed in Table 28.6.

21.50. The nightjar survey has identified the presence of six territories of this species; two in Hurn Forest, two in West Moors Plantation and two in the West Moors MOD site. Nightjars are listed on S41 of the NERC Act, and are included on the BoCC red list.

21.51. The baseline description of the bird populations recorded is based on the following habitat types and areas identified along the route:

- Farmland;
- Broadleaved woodland;
- The Avon River valley;
- Small lowland rivers and streams;
- Heathland and coniferous plantation mosaic;
- Onshore Substation site.

21.52. The habitat types and areas supporting different breeding bird populations are shown in Figures 28.2a to 28.2i.

21.53. The location of wintering bird records is shown in Figures 28.2a to 28.2i. The wintering bird records have been grouped into zones to facilitate description in the text.

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
Bewick's swan (*Cygnus columbianus*)	N/A	4W	✓	✓	✓	✓Amber	-	A scarce winter visitor to both counties recorded mainly from the Avon and Frome valleys.	International –The number recorded represents 3% of the Avon Valley SPA designated population, 1% of the Dorset population (Worden *et al*., 2006) and 0.06% of the English population (Worden *et al*., 2006).
Dark-bellied Brent goose (*Branta bernicla bernicla*)	N/A	22W	-	-	✓	✓Amber	✓	Locally common, with numbers in both counties fluctuating year on year.	International – This species is a feature of a number of SPAs in the general area (Solent & Southampton Water, Chichester & Langstone Harbour and Poole Harbour – see Chapter 12, Offshore Ornithology). It is known to travel several kilometres inland to forage in arable fields, as well as feeding in intertidal areas.
Shelduck (*Tadorna tadorna*)	N/A	6-10B	-	-	-	✓Amber	-	A localised species; both breeding and winter visitor.	County – the bird reports of Hampshire and Dorset suggest a high proportion of the counties breeding population was present during the survey period. Numbers were small in comparison to the British breeding population (approximately 11,000 pairs – Baker *et al*. 2006).
Wigeon (*Anas penelope*)	N/A	200W	-	-	-	✓Amber	-	A common winter visitor and passage migrant. A few summer each year in Hampshire.	County – the numbers of wigeon noted were small in comparison to the UK population (~0.05% - Holt *et al*., 2012). However, data from the local bird reports suggest the number present are likely to represent over 1% of the county totals.

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
Teal (*Anas crecca*)	N/A	65W	-	-	-	✓Amber	-	A common winter visitor to both counties but a declining resident and breeder.	County – the numbers of teal noted were small in comparison to the UK population (~0.04% - Holt *et al*., 2012). However, data from the local bird reports suggest the number present are likely to represent over 1% of the county totals.
Grey partridge (*Perdix perdix*)	N/A	1B	-	-	✓	✓Red	✓/✓*	A declining resident but numbers supplemented by releases.	County – grey partridge is a declining species of principal importance; it is also listed on the Local BAPs. Although birds observed maybe artificially reared and released for sport, survey results cannot provide a distinction. A single breeding pair of this species was recorded only.
Quail (*Coturnix coturnix*)	N/A	1B	-	✓	-	✓Amber	✓/✓*	Declining species in Hampshire and scarce summer visitor.	National – quail is a scarce species listed on schedule 1 of the WCA Sch. 1, the BoCC Amber list and Local BAPs.
Marsh harrier (*Circus aeruginosus*)	N/A	1W	✓	✓	-	✓Amber	-	A scarce migrant with successful breeding records in Dorset during 2010. No breeding records from Hampshire since 1957.	County – breeding and wintering populations of marsh harrier are increasing in the UK, but this species is still scarce in Dorset and Hampshire. The single record of marsh harrier constitutes less than 1% of the national population (Robinson *et al.,* 2005).
Hen harrier (*Circus cyaneus*)	N/A	1W	✓	✓	-	✓Red	-	Scarce winter visitor and passage migrant, to both counties.	International –the single record of hen harrier represents over 1% of the Dorset Heathlands SPA designated population and approximately 0.1% of the British wintering population (Baker *et al*.,

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
									2006).
Merlin (*Falco columbarius*)	N/A	1W	✓	-	-	✓Amber		A scarce winter visitor in both counties with numbers for the winter period in Dorset the best for some years	International –The number recorded represents over 1% of the Dorset Heathlands SPA designated population and approximately 0.09% of the British population (Robinson *et al*., 2005).
Peregrine falcon (*Falco peregrinus*)	N/A	1W	✓	✓	-	✓Green	-	A scarce resident, breeding on cliffs along the coast and inland on pylons. Increasing numbers in Hampshire.	County – peregrine are increasing in number in the UK but are still a scarce resident in Hampshire & Dorset. The single individual seen represents less than 1% of the British population (Robinson *et al*., 2005).
Lapwing (*Vanellus vanellus*)	22	81W	-	-	✓	✓Red	✓/✓*	A declining breeding resident in both counties.	County – lapwing were noted in low numbers representing approximately 0.03% of the national wintering population (derived from Holt *et al.,* 2012) and less than 1% of the breeding population (Robinson *et al*., 2006). This species is however noted on S41 as being of principal importance, is listed on the local BAPs and BoCC red list and was recorded in good numbers during the breeding season.
Green sandpiper (*Tringa ochropus*)	N/A	1W	-	✓		✓Amber		A passage migrant and scarce winter visitor in both	County – a scarce winter visitor occurring in very low numbers but not in numbers that exceed 1% of the British population (Robinson *et al.,* 2005).

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
								counties.	
Mediterranean gull (*Larus melanocephalus*)	N/A	4W	✓	✓		✓Amber		Increasing breeder and winter visitor to both counties.	International – this species is noted as a breeding feature of Solent and Southampton Water and the Poole Harbour SPAs. The numbers are approximately 0.2% of the national population (Musgrove *et al*., 2011).
Black-headed gull (*Chroicocephalus ridibundus*)	N/A	51+B/ 3000W	-	-	-	✓Amber	-	Very common resident, breeding in large numbers in both Hampshire and Dorset.	County – black-headed gull are a common species in Hampshire and Dorset. The number noted breeding were small in comparison to the resident population. The numbers noted over-winter were approximately 0.1% of the British population but could potentially exceed 1% of the Hampshire/Dorset population (based on information from local bird reports).
Lesser black-backed gull (*Larus fuscus*)	N/A	4B	-	-	-	✓Amber	✓*	Scarce breeder but common migrant and winter visitor to Hampshire and Dorset.	County – lesser black-backed gull are a scarce breeder in the Hampshire and Dorset area. Although the numbers noted were small in comparison to the British population (0.003% derived from Mitchell *et al*., 2004) they are likely to represent more than 1% of the Dorset and Hampshire totals.
Turtle dove (*Streptopelia turtur*)	N/A	1B	-	-	✓	✓Red	✓/✓*	Declining numbers in both Hampshire and Dorset.	County – turtle dove is a declining species found in low numbers in Dorset and Hampshire. Numbers noted on survey were very low representing 0.002% of the British population (Baker *et al*., 2006) but could be in excess of 1% of the county totals.

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
Nightjar (*Caprimulgus europaeus*)	6	N/A	✓	-	✓	✓Red	✓/✓*	A common summer visitor in both counties.	International –nightjar were recorded in numbers in excess of 1% of the Dorset Heathlands SPA designated population (although none of the birds were recorded within the designated site). The 6 probable breeding pairs recorded represent approximately 0.1% of the British population (Robinson *et al.,* 2005).
Woodlark (*Lullula arborea*)	N/A	1W	✓	✓	✓	✓Amber		Scarce breeding resident and passage migrant in both counties.	International – woodlark is listed on the designation of the Dorset Heathland SPA. Although numbers recorded were small and in winter only the small population size listed on the designation makes all individuals potentially important.
Skylark (*Alauda arvensis*)	14	18W	-	-	✓	✓Red	✓/✓*	An abundant resident and winter visitor in Hampshire but with numbers declining across Dorset.	County – skylark is an abundant resident and winter visitor noted in relatively low numbers (in comparison to likely county totals) but listed on the BoCC red list, Local BAPs and the S41 list.
Tree pipit (*Anthus trivialis*)	4	N/A	-	-	✓	✓Red	✓*	Localised breeder and passage migrant.	County – tree pipit is a localised breeder in Hampshire and Dorset. The numbers recorded represent approximately 0.005% of the British population. Information from local bird reports suggests that the number present within the survey area could be in excess of 1% of the county population.

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
Yellow wagtail (*Motacilla flava*)	6	N/A	-	-	✓	✓Red	✓/✓*	A common passage migrant in both counties but rare visitor in summer in Hampshire and a former breeder in Dorset.	County– yellow wagtail is a rare summer visitor noted in high numbers in comparison to Hampshire and Dorset populations, however the numbers present only account for 0.03% of the British population (Robinson *et al*., 2005).
Redstart (*Phoenicurus phoenicurus*)	2	N/A	-	-	-	✓Amber	✓*	Scarce breeder in Dorset but a common passage migrant.	County – redstart is a scarce breeder in Dorset but locally common in the New Forest. Noted in relatively low numbers but likely to be in excess of 1% of the county population if the New Forest is excluded.
Whinchat (*Saxicola rubetra*)	1	N/A	-	-	-	✓Amber	✓	A common passage migrant in both counties but an occasional breeder.	County – whinchat is an occasional breeder in both counties only but relatively common elsewhere in the UK. The numbers present in the surveyed area represent 0.004% of the British population.
Mistle thrush (*Turdus viscivorus*)	5	4W	-	-	-	✓Amber	✓*	A Common breeding resident and passage migrant.	County – mistle thrush is a declining species noted in good numbers (in comparison to local bird reports), it is also on Local BAP and BoCC amber list.
Grasshopper warbler (*Locustella naevia*)	1	N/A	-	-	✓	✓Red	✓/✓*	Common passage migrant in Dorset but in severe decline as a breeding species in both	County – grasshopper warbler is declining breeding species in Hampshire and Dorset noted in small but important numbers with regard county populations. The numbers recorded during the survey represent 0.01% of the British

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
								counties.	population (Robinson *et al.*, 2005).
Dartford warbler (*Sylvia undata*)	N/A	2W	✓	-	-	✓Amber	-	Locally common breeding resident, mainly confined to heaths in Hampshire.	County – Dartford warbler is listed on the designation of the Dorset Heathland SPA. However, numbers noted were small (less than 1% of the Dorset population- based on local bird reports), outside of the Dorset Heathlands SPA and only wintering birds were recorded.
Marsh tit (*Poecile palustris*)	2	2W	-	-	✓	✓Red	✓*	A common but declining resident in Hampshire and Dorset.	County – marsh tit is a declining species that is still relatively common in Hampshire and Dorset. Noted in small numbers only but is listed on S41, BoCC red list and the Local BAP
Eurasian tree sparrow (*Passer montanus*)	3*	3B	-	-	✓	✓Red	✓/✓*	A very scarce passage migrant, formally a resident and winter visitor in Hampshire and a local breeding species in Dorset.	County – rare breeding species in the counties and declining across the UK; however the numbers recorded only represent approximately 0.004% of the British population (Robinson *et al.*, 2005).
Linnet (*Carduelis cannabina*)	8*	10B/11W	-	-	✓	✓Red	✓/✓*	A common resident but numbers much reduced in winter in Hampshire and a declining in breeding numbers in	County – a declining breeding and winter species in Hampshire and Dorset. Noted on the S41 list, BoCC red list and on Local BAPs but occurring in small numbers only (approximately 0.001% of the British population – Robinson *et al.,* 2005).

Table 28.6 Bird species recorded in the Onshore Development Area

Species	Territories/ Colonies	Peak count (Breeding = B; Wintering = W)	Birds Directive Annex 1	WCA SCH 1	NERC S41 list	BoCC list	LOCAL BAP (✓ = Hants, ✓* = Dorset)	Summary from bird reports	Valuation of population in survey area
								Dorset.	
Lesser redpoll (*Carduelis cabaret*)	N/A	48W	-	-	✓	✓Red		A rare breeding species, common passage migrant and winter visitor in both counties.	County – lesser redpoll is a common winter visitor in Hampshire and Dorset noted in reasonable numbers. Approximately 0.1% of the British population was noted during the survey programme.
Crossbill (*Loxia curvirostra*)	N/A	11W	-	✓	-	✓Green	-	A scarce resident and irruptive migrant and winter visitor to Hampshire and Dorset.	County – crossbill is an irruptive winter visitor to Hampshire and Dorset. The numbers recorded may be approximately equivalent to 1% of the county totals based on information available in local bird reports.

21.4.3. Baseline description - designated sites

21.54. There are three designated sites of international importance for birds within 1.5 km of the Onshore Development Area, all of which overlap with the onshore elements for the Project. These are the Avon Valley SPA, the Avon Valley Ramsar site (these two designations overlap) and the Dorset Heathlands SPA. There are also four SSSIs; three of these underpin the SPA and Ramsar designations noted above. No non-statutory sites identified in Chapter 27, Terrestrial Ecology have been identified for their ornithological interest. Details of the designations with ornithological features are provided in Table 28.7 and the locations are shown on Figure 28.2 alongside other sites designated for their ecological value.

Table 28.7 Designated sites for birds within the Onshore Development Area

Site name	Grid reference	Total site area (ha)	Area within Onshore Development Area (ha)	Description and reason for notification
Sites of international conservation value				
Avon Valley SPA and Ramsar	SU 147123 to SZ 163923	1385	3.00	SPA - Chalk river with diverse flora and fauna, includes one of the largest expanses of unimproved floodplain grassland in Britain. Other habitats include fen, mire, small areas of woodland and complex water meadow. This site supports 135 over-wintering Bewick's swan (representing at least 1.9% of the wintering population of Great Britain) and 667 over-wintering gadwall (*Anas strepera)* (representing at least 2.2% of the wintering north-western European population). Ramsar - Site supports a diverse assemblage of wetland flora and fauna including nationally rare species. Populations of gadwall, Northern pintail (*Anas acuta)* and black-tailed godwit (*Limosa limosa islandica)* are found at levels of international importance.
Dorset Heathland SPA	SY 887835*	8169	3.89	Large areas of dry heath, wet heath and acid valley mire, often occurring together in mosaics and zonations. This site supports 418 pairs of Dartford warbler (representing at least 26.1% of the breeding population of Great Britain), 60 pairs of woodlark (representing at least 11.4% of the breeding population of Great Britain) and 386 pairs of nightjar (representing at least 11.4% of the breeding population of Great Britain). Wintering hen harrier (20 individuals representing 2.7% of the wintering population of Great Britain) and merlin (15 individuals representing 1% of the wintering population of Great Britain) are also features.
Sites of national conservation value				
Avon Valley SSSI (part of the Avon Valley SPA and Ramsar site)	SU 147123 to SZ 163923	1385	3.99	The flood plain and associated river terraces contain a variety of habitats ranging from herb-rich hay meadows and pastures, through a range of riparian fens and mires to riparian woods, dune grassland and heathland. These habitats support internationally and nationally important assemblages of breeding and wintering birds.
River Avon System SSSI (part of the Avon Valley SPA and Ramsar site)	SU 147123 to SZ 163923	498	0.14	The site supports good breeding populations of kingfisher (*Alcedo atthis)*, reed warbler (*Acrocephalus scirpaceus)* and sedge warbler (*Acrocephalus schoenobaenus)*.
Holt & West Moors Heaths SSSI (part of the Dorset Heathlands SPA)	SU 030358	766	3.89	Heathland lying on acidic soil, clays and gravels, with areas of bog in waterlogged areas. Site supports several notable species including hobby and nightjar.
St Leonards and St Ives Heaths SSSI	SU 127014	86	1.78	Lowland dwarf shrub heath supporting Dartford warbler, nightjar and woodlark.

21.4.4. Baseline description – labitat types

Farmland

21.55. The majority of the Onshore Cable Corridor, approximately 22 km, would pass through farmland habitat types. These include: pasture and arable fields; hedgerows; small copses; and farm tracks. The area of farmland habitat within the onshore elements of the Project is approximately 110 ha (including access tracks and temporary construction compounds).

21.56. A total of 34 bird species associated with farmland habitat along the cable route were recorded as confirmed breeders or probably breeding during the time of the breeding bird survey. The majority of the species noted were associated with field boundary features such as hedgerows and tree lines; open fields conversely supported very few breeding territories.

21.57. The majority of the species recorded during the breeding bird survey are common and widespread and not of particular conservation concern. Blackbird (*Turdus merula*) was the most regularly recorded breeding species with 40 mapped territories; other commonly encountered species were chaffinch (*Fringilla coelebs* - 27 territories), wren (*Troglodytes troglodytes* - 27 territories) and robin (*Erithacus rubecula* - 23 territories). The location of all breeding bird territories will be detailed in the ES that forms part of the application for development consent.

21.58. Areas of particular interest noted within the survey area were the Blacklands Farm area north of Sway Road (Figure 28.2b) where a cuckoo(*Cuculus canorus*), a yellow wagtail and two tree sparrow breeding territories were recorded and a single redstart was noted on passage; fields west of Downton Lane (Figure 28.2a) and across Avon Tyrell (Zone 4 on Figure 28.2e and 28.2f) where skylark was noted displaying and the Downton Lane area (Figure 28.2a) where song thrush (*Turdus philomelos*), house sparrow (*Passer domesticus*), dunnock (*Prunella modularis*), yellowhammer and mistle thrush were noted holding territory. There were also several starling (*Sturnus vulgaris*) colonies north of Sway Lane in the Blacklands Farm and Marks Lane areas.

21.59. Notable species (those species included on published lists as being of conservation concern) recorded during the wintering bird survey, included dark bellied brent goose and curlew in the fields to the west of Downton Lane (Zone 2, see Figure 28.2a). Good numbers of starlings and lapwing were recorded in the fields associated with the pig farms in the Avon Tyrell area (Zone 4, see Figures 28.2e and 28.2f) and the open fields to the north of Sopley in Zone 4 (Figure 28.2e).

21.60. A number of birds listed on BoCC were recorded during winter in association with hedgerows, these included yellowhammer, linnet, house sparrow and song thrush. Skylark was recorded in open fields.

Broadleaved woodland

21.61. Parts of 16 separate areas of broadleaved woodland fall within the Onshore Development Area. The total area of broadleaved woodland within the Onshore Development Area of the Project is approximately 14.3 ha, with an approximate length (along the cable route) of 3.4 km. The location of individual woodlands is shown on Figures 28.2a to 28.2i and the areas falling within the working width are shown in Table 28.8. The woodlands in Table 28.8 are listed moving inland from the Landfall. The percentage of woodland affected calculation assumes the full 40m cable corridor is cleared. Further design iterations as part of the assessment process prior to finalising the ES is planned.

Table 28.8 Broadleaved Woodlands within the Onshore Development Area

Name of woodland	Figure number	Area within Onshore Development Area (ha)	% of woodland affected	Length of Cable Route crossing woodland (m)
Honeylake Wood	10.2a	0.1	1.4%	35
Breakhill Copse	10.2a	2.7	6.8%	688
Golden Hill	10.2b	0.6	0*	137
Stanley's Copse	10.2b	0.9	3.0%	208
Danes Stream Coppice	10.2b	0.4	0	95
Great Woar Copse	10.2c	1.0	0	269
Beckley Moor Copse	10.2c	1.3	0	329

Table 28.8 Broadleaved Woodlands within the Onshore Development Area				
Dark Firs	10.2d	1.0	6.8%	167
Tilley's Plantation	10.2d	0.65	13.1%	268
Allensworth Wood	10.2d	1.0	6.4%	261
New Close Wood	10.2d	0.5	6.9%	138
Slape Copse	10.2f	0.2	0	50
East Moors Wood	10.2h	0.34	15.9%	258
MOD Training Ground Wood	10.2i	1.4	70%	234
Sturt Farm Woodland	10.2i	1.2	33.7%	311

*where 0% of the woodland is affected trenchless crossing techniques have been specified in the design.

21.62. The breeding bird survey recorded 21 species of bird within areas of broadleaved woodland which were confirmed breeders or probably breeding. The most numerous species recorded were wren, chiffchaff and robin. Other notable species recorded in broadleaved woodland during the survey were dunnock, song thrush and willow warbler, for which one territory of each was recorded within the Onshore Development Area and green woodpecker (*Picus viridis*), and goldcrest (*Regulus regulus*) for which two territories of each was recorded.

21.63. No wintering bird surveys were carried out in woodlands because of the relatively small area affected and because this habitat type was not considered likely to support important aggregations of wintering species.

Avon River Valley

21.64. The Avon River Valley, see Figure 28.2f, contains one of the largest expanses of floodplain grassland in Britain. It is internationally important, designated as an SPA and Ramsar site, for its wintering populations of Bewick's swan and gadwall and has nationally important populations of waterfowl.

21.65. Following decisions that direct impacts on the Avon River Valley would be avoided by trenchless crossing as embedded mitigation, no breeding bird survey was undertaken in the area.

21.66. A large number of bird species (42) were recorded in the Avon Valley during a wintering bird survey, see Figure 28.2f. Four Bewick's swans were recorded feeding and good concentrations of wigeon and teal were noted, with maximum counts of 200 and 65 respectively. Other wildfowl on site included a high density of both feral greylag goose (*Anser anser*) and Canada goose(*Branta canadensis*). Several species of raptors were also recorded along the river corridor including hen harrier, merlin, kestrel (*Falco tinnunculus*), peregrine, sparrowhawk (*Accipiter nisus*) and buzzard (*Buteo buteo*). Other notable species recorded included reed bunting (*Emberiza schoeniclus*), meadow pipit (*Anthus pratensis*) and skylark. These passerines were mostly associated with the rough grassland and small reedbeds found in the valley. Wintering bird survey records for the Avon River Valley are shown on Figure 28.2f.

Smaller lowland rivers and streams

21.67. The section of the cable route which crosses the Moors River (Figure 28.2h) was not noted for any bird aggregations or species of high nature conservation value during the wintering bird survey. Ten species were recorded during the breeding bird survey of which three were notable; namely house sparrow, reed bunting and song thrush.

21.68. At Danes Stream (Figure 28.2a) and Ripley Brook (Figure 28.2f) no notable species were recorded.

Heathland and coniferous plantation mosaic

21.69. The northern section of the Onshore Cable Corridor would run through an area of lowland heath that has been stocked, in the majority of locations, with conifers (Figure 28.2f to 28.2i). In addition, to heathland and conifer plantation the area also supports coarse grassland, bog and woodland/scrub (mainly birch). These areas are Hurn Forest, West Moors Plantation, West Moors MOD area, Avon Heath Plantation, Long Acre Plantation and Mill Nursery Plantation.

21.70. Hurn Forest is the largest single area of this habitat within the Onshore Development Area; it is located within East Dorset, west of the Avon Valley.

The Onshore Cable Corridor would run along the main track through the forest, covering approximately 5 km, with the working width covering an area of approximately 20 ha (approximately 10% of this is a forestry track).

21.71. To the north of Hurn Forest, West Moors Plantation forms another extensive tract of this habitat type; there is, however, an area of wet acid grassland towards its centre. Through West Moors Plantation the Onshore Cable Corridor covers a distance of approximately 1.1 km and an area of 5 ha.

21.72. There is an area of lowland heath with stands of gorse, on the West Moors MOD area (Figure 28.2i). The heathland in this area is covered by the Dorset Heathland SPA designation (see Figure 28.2). The Dorset Heathlands cover an extensive complex of heathland sites at the western edge of the Hampshire Basin. The sites are important for specialist breeding birds of lowland heathland (including Dartford warbler, nightjar and woodlark), as well as some wintering raptors (including hen harrier and merlin). The length of the Onshore Cable Corridor would pass through this habitat area is 0.34 km and the area within the working width is approximately 2 ha.

21.73. Avon Heath Plantation is located between the Avon River Valley and Hurn Forest. It has a similar mosaic of habitats to the other plantations with boggy areas, remnant dry heathland, coniferous plantation and some broadleaved trees. The Onshore Development Area covers an area of approximately 1.2 ha within Avon Heath Plantation.

21.74. Long Acre Plantation (Figure 28.2f), near to Avon village and Mill Nursery Plantation to the west of the new substation (Figure 28.2i), are less diverse in nature to those plantation areas previously discussed, mainly being coniferous woodland; the associated bird community is also less diverse.

21.75. Breeding bird surveys were undertaken in all areas and wintering bird surveys in Hurn Forest and West Moors Plantation only.

21.76. The breeding bird surveys recorded a wide range of species reflecting the many opportunities for nesting and foraging presented by the mosaic of habitats present in the area surveyed. Thirty species were recorded breeding within, or adjacent, to this mosaic of habitats. Multiple species of finches, tits and warblers were present, alongside other passerines such as goldcrest and stonechat (*Saxicola rubicola*). Buzzard was the only raptor noted breeding within this area; a total of four territories were recorded. The most notable breeding species were: nightjar (six pairs), yellow wagtail (one pair), linnet (a colony of two pairs) and tree pipit (four pairs). None of the notable species recorded were present in Long Acre Plantation or Mill Nursery Plantation.

21.77. The wintering bird survey recorded several species of interest including: Dartford warbler, woodlark and crossbill. Flocks of fieldfare (*Turdus pilaris*), redwing (*Turdus iliacus*) and skylark were also noted. Both woodlark and crossbill are known to breed early in the year and hence these species could have been establishing territory at the time of survey.

Onshore substation site

21.78. The site of the Onshore Substation (Figure 28.2i) covers an area of approximately 8.15 ha and currently comprises a camping and caravan site in its eastern portion, together with open fields to the west which are currently used as grazing pasture. The site is largely contained by mature broadleaved vegetation along its northern and western boundaries.

21.79. No wintering bird survey was carried out in the area of the Onshore Substation because it was not considered to support habitat likely to be of any special interest for wintering bird species. Fifteen species were recorded during the breeding bird survey.

21.80. The bird species recorded during the breeding bird survey, in the area of the Onshore Substation, are similar to those recorded in other farmland habitats along the route. The species of conservation concern recorded included single territories of goldcrest and green woodpecker and two territories each of song thrush and yellow wagtail. Starling were also recorded in this area, but were not recorded as breeding.

21.4.5. Scoping of the habitat types and areas

Designated sites

21.81. Trenchless techniques would be used to install cables across the Avon River Valley SPA and Ramsar site. This would avoid direct impacts on the internationally important over-wintering bird populations and habitats for which the site is designated. Although construction compounds would be located outside of the site boundary there is the possibility of an impact on the bird population as a result of disturbance from noise and movement created at the compounds. For this reason the impact caused by

disturbance to birds (particularly Bewick's swan and gadwall) using the Avon River Valley is assessed in Impact Assessment section.

21.82. Kingfisher, reed warbler and sedge warbler are included in the River Avon System SSSI notification, however, impacts on these species and their preferred habitats would be avoided by trenchless techniques.

21.83. The majority of impacts on the Dorset Heathlands SPA would be avoided by trenchless techniques; however, the proposed location of a construction compound within the designated site boundary could impact one of the bird species, nightjar, for which the site was designated. The location of nightjar territories is presented in Figure 28.3. The impact on nightjar is assessed in the Impact Assessment section. Assessment of impacts on other bird species for which the site is designated (including Dartford warbler, woodlark and merlin) is scoped out because these species were not recorded during the surveys in or adjacent to the area which will be impacted.

21.84. Holt and West Moors Heaths SSSI citation includes hobby and nightjar in its notification. Hobby was not recorded in the survey area; impacts on nightjar are assessed in the Impact Assessment section.

21.85. St Leonards and St Ives Heaths SSSI citation includes Dartford warbler, nightjar and woodlark. Dartford warbler and woodlark were not recorded to be present within the survey area inside the SSSI designation and are, therefore, scoped out of this assessment.

Farmland birds

21.86. The area of farmland habitat within the Onshore Development Area that would be temporarily lost as a result of the development is a very small proportion of the total amount of this habitat type available to birds in the local area. Although some territories of breeding birds may be disrupted for a short period the result is likely to be, at worst, a reduction in breeding success of individual pairs rather than the loss of adult birds to the breeding population. However, effect pathways which could result in impacts to the following ornithological features within the farmland bird community have been identified:

- Birds using hedgerows for foraging and nesting, including linnet and turtle dove;
- Ground nesting farmland birds including skylark, yellow wagtail and lapwing;
- Wintering birds using farmland including dark-bellied Brent goose, Bewick's swan and lapwing;
- Breeding Schedule 1 bird species such as quail.

21.87. All wild birds are given general protection under the Wildlife & Countryside Act 1981 (as amended). Part 1 of this act makes it an offence to kill or take any wild bird or take, damage or destroy an active nest or eggs (with certain exceptions). Therefore, it would be necessary for hedgerows, scrub, trees and coarse vegetation to be removed over the winter period to avoid potential contravention of the law (i.e. damage or destruction of active nests, eggs or chicks). All clearance of vegetation suitable for nesting would take place over the winter period (between September and February, inclusive) and therefore the potential to contravene the WCA would be avoided. Consequently further assessment of this impact is not required.

21.88. Hedgerow removal could impact birds using this woody vegetation as shelter or as a food source, through habitat loss and disturbance during construction. Loss of hedgerow habitat would look to be reduced, through embedded mitigation, by locally narrowing the cable corridor and hence minimising vegetation removal. Impacts on hedgerows and opportunities for enhancement will be detailed in the ES that will form part of the application for development consent.

21.89. The removal of small lengths of hedgerows in individual locations are unlikely to result in a detectable effect on any breeding or wintering individuals. However, when associated with the disturbance created by construction it is possible that breeding success would be compromised in several breeding territories. The reduction in breeding success, when considered in the context of the population, would however be small and likely to be within normal between year variations (especially given that most of the species will have multiple broods) suggesting that no detectable effect would be realised. Therefore, no further impact assessment will be considered.

21.90. The impacts from temporary losses of habitat to ground nesting birds are unlikely to be detectable. This is because ground nesting birds using arable and heathland habitats already show plasticity in nesting and foraging

locations between years due to practices such as crop rotation, heather cutting or burning. In addition, the area unavailable at any one time would be small as active construction works would not take place within the whole development area concurrently, see Chapter 2.

21.91. A breeding bird survey recorded one species listed on Schedule 1 of the WCA within farmland habitat. One quail was recorded within suitable breeding habitat close to the River Avon; this bird was assumed to be breeding. Numbers of quail fluctuate markedly between years and nest locations alter dependent on the development of habitat (e.g. in farmland the current crop rotation will determine nesting).

Broadleaved woodland birds

21.92. Eleven woodlands would potentially be impacted by the construction works. There would possibly be a temporary habitat loss as a result of site clearance of approximately 14.3 ha of broadleaved woodland habitat. The proportion of the woodland block impacted is less than 7% for six of the woodlands and between 9 and 16% for a further three woodlands. A larger proportion of the woodland block would be removed at Sturt Farm (33.7%) and the West Moors MOD site woodland (70%). However, these two woodlands are small in size, 1.2 and 1.4 ha respectively, and consist mainly of immature trees. Sturt Farm woodland is already subject to periodic scrub clearance due to the presence of a pylon and overhead power lines. The West Moors MOD site woodland consists of immature birch trees in an area of heathland habitat. Removal of these trees could allow regeneration of heathland habitat with a positive benefit to biodiversity.

21.93. To date, only seven breeding bird territories (of five different species) of species of conservation importance were recorded in woodland habitat along the Onshore Cable Corridor within the survey area. None of these species occurred in numbers great enough to warrant a nature conservation valuation of more than local.

Heathland and coniferous plantation mosaic

21.94. The majority of the species recorded in this mosaic of habitats are common and widespread in the UK and are of no more than local value within the Onshore Development Area given the numbers recorded.

21.95. During the breeding period only four species of greater than local value were recorded; these were nightjar, yellow wagtail, linnet and tree pipit.

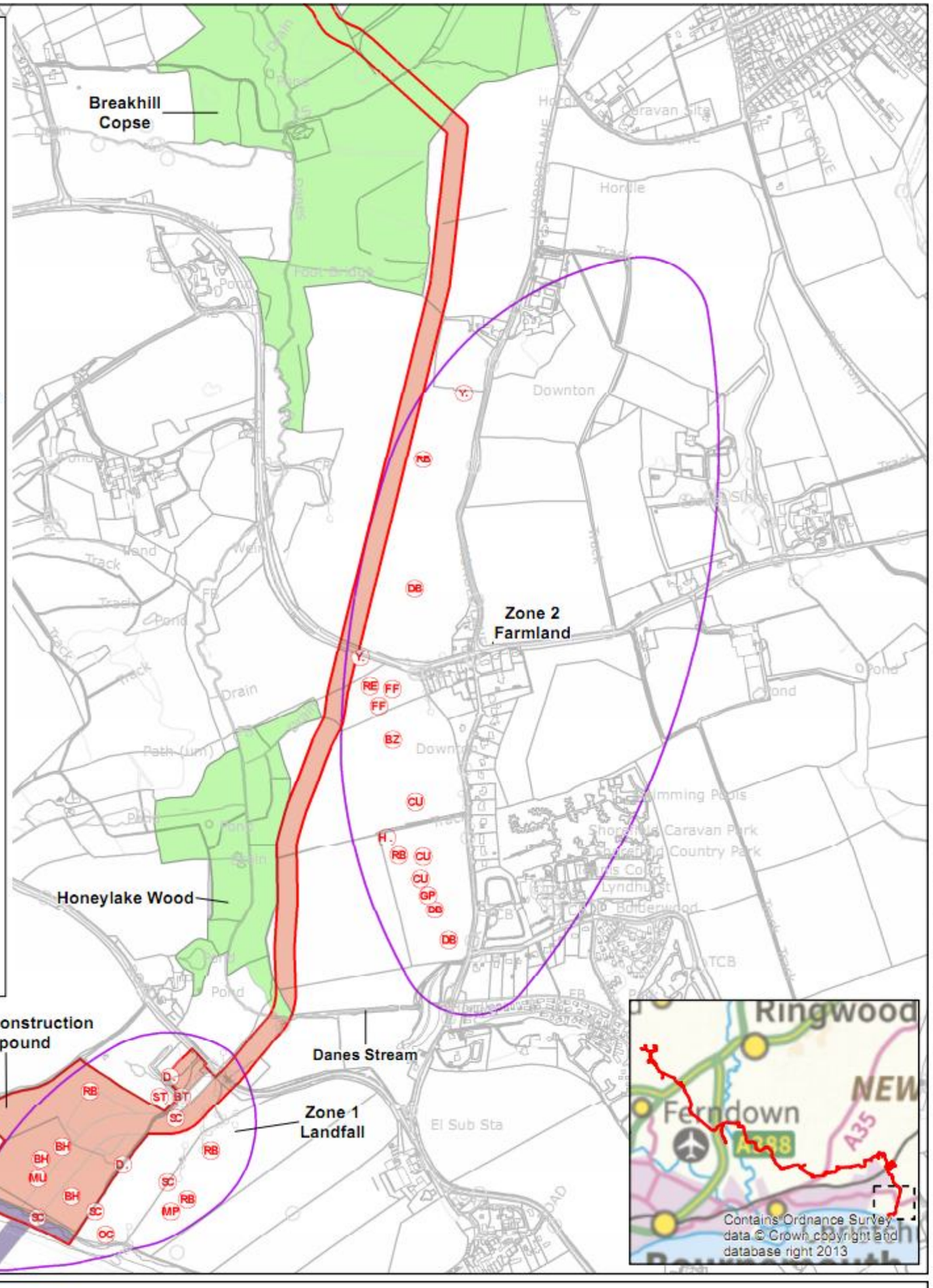
21.96. In addition, this mosaic of habitat in the area is regularly changing as areas of plantation forestry are felled and either re-planted, restructured or targeted for conversion back to heathland habitats. Therefore the temporary loss of relatively small areas is unlikely to result in a detectable impact on these species. However, nightjar numbers recorded along the Onshore Cable Corridor represent over 1% of the county population of Dorset, and over 1.5% of the Dorset Heathlands SPA population; given the relatively high density of nightjar territories recorded an assessment is provided in the Impact Assessment section.

Onshore Substation site and smaller lowland rivers and streams

21.97. No ornithological features were identified in the area of the onshore substation of sufficient value.

Key to Bird Identification Codes (Applicable to all maps)

BF	BF, Bullfinch	L.	L., Lapwing
BH	BH, Black-headed Gull	LI	LI, Linnet
BS	BS, Bewick's Swan	LR	LR, (Lesser) Redpoll
BT	BT, Blue Tit	M.	M., Mistle Thrush
BZ	BZ, Buzzard	MA	MA, Mallard
CD	CD, Collared Dove	MD	MD, Marsh Sandpiper
CG	CG, Canada Goose	ML	ML, Merlin
CH	CH, Chaffinch	MP	MP, Meadow Pipit
CM	CM, Common Gull	MR	MR, Marsh Harrier
CO	CO, Coot	MS	MS, Mute Swan
CR	CR, Crossbill	TP	MT, Marsh Tit
CU	CU, Curlew	MU	MU, Mediterranean Gull
D.	D., Dunnock	ND	ND, Great Northern Diver
DB	DB, Dark-bellied Brent Goose	OC	OC, Oystercatcher
DN	DN, Dunlin	PE	PE, Peregrine
DW	DW, Dartford Warbler	PS	PS, Purple Sandpiper
EG	EG, Egyptian Goose	RA	RA, Razorbill
ET	ET, Little Egret	RB	RB, Reed Bunting
FF	FF, Fieldfare	RE	RE, Redwing
GW	G., Green Woodpecker	RK	RK, Redshank
GB	GB, Great Black-backed Gull	SC	SC, Stonechat
GD	GD, Goosander	SD	SD, Stock Dove
GE	GE, Green Sandpiper	SG	SG, Starling
GG	GG, Great Crested Grebe	SH	SH, Sparrowhawk
GJ	GJ, Greylag Goose	SN	SN, Snipe
GW	GL, Grey Wagtail	SR	SR, Great Grey Shrike
GP	GP, Golden Plover	ST	ST, Song Thrush
GR	GR, Greenfinch	SU	SU, Shelduck
H.	H., Grey Heron	T.	T., Teal
HG	HG, Herring Gull	TU	TU, Tufted Duck
HH	HH, Hen Harrier	WK	WK, Woodcock
HS	HS, House Sparrow	WL	WL, Woodlark
K.	K., Kestrel	WN	WN, Wigeon
KF	KF, Kingfisher	Y.	Y., Yellowhammer



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Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Broadleaved Woodland
- Farmland
- Landfall
- Zone

Fig. No.: Figure 28.2a		**Date:** 10/08/2013
Author: NS	**Checked:** TD	**Approved:** PF
Scale@A3: 1:10,000		**Revision No.:** 01
Coordinate System: British National Grid		**Data Sources:** OS ECOSA Dec 2011 and July 2012
Datum: OSGB 1936	**Ref. No.:** 11352	

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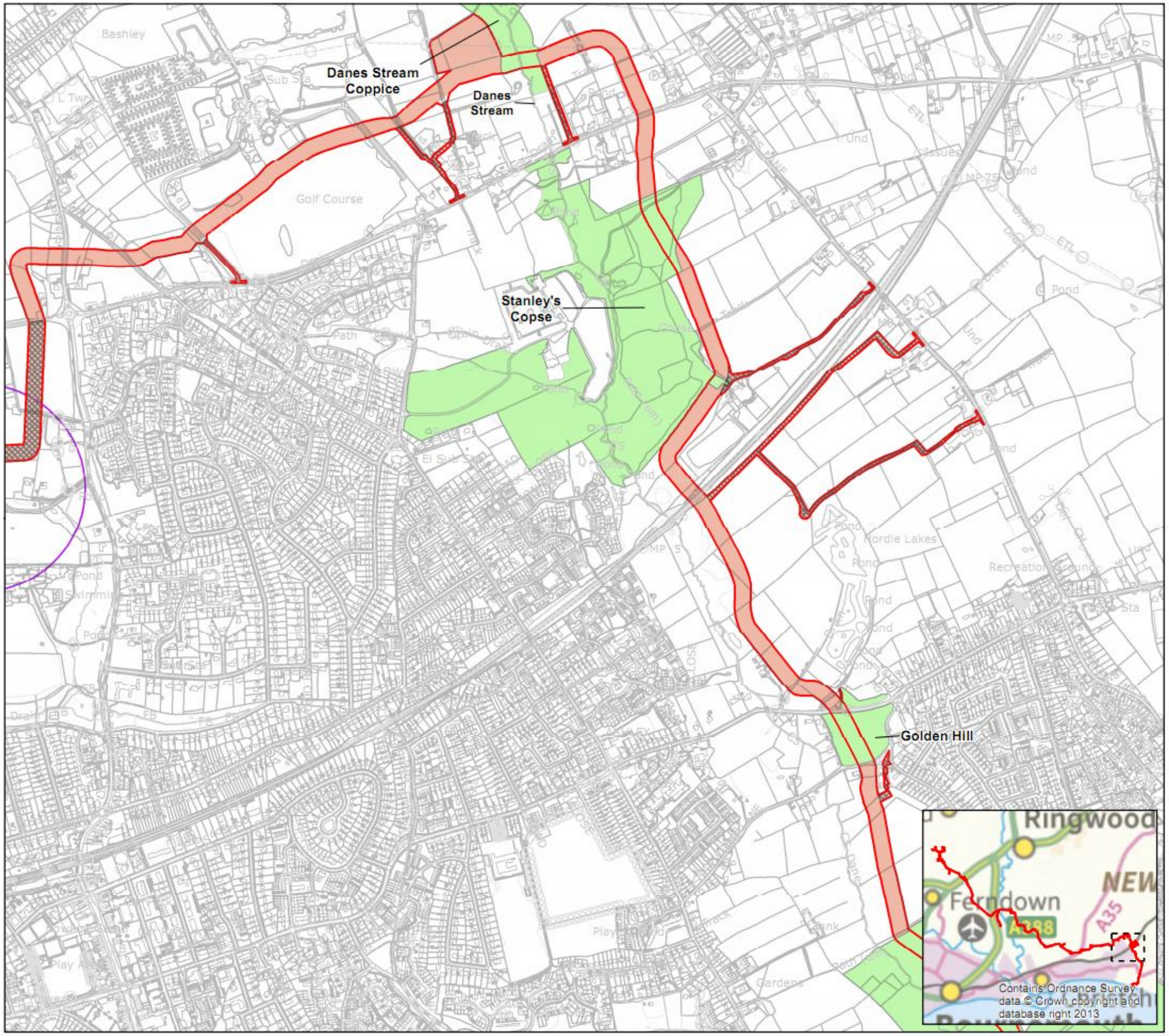

Navitus Bay Development Ltd

Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Broadleaved Woodland
- Farmland
- Zone

Fig. No.: Figure 28.2b		**Date:** 10/08/2013
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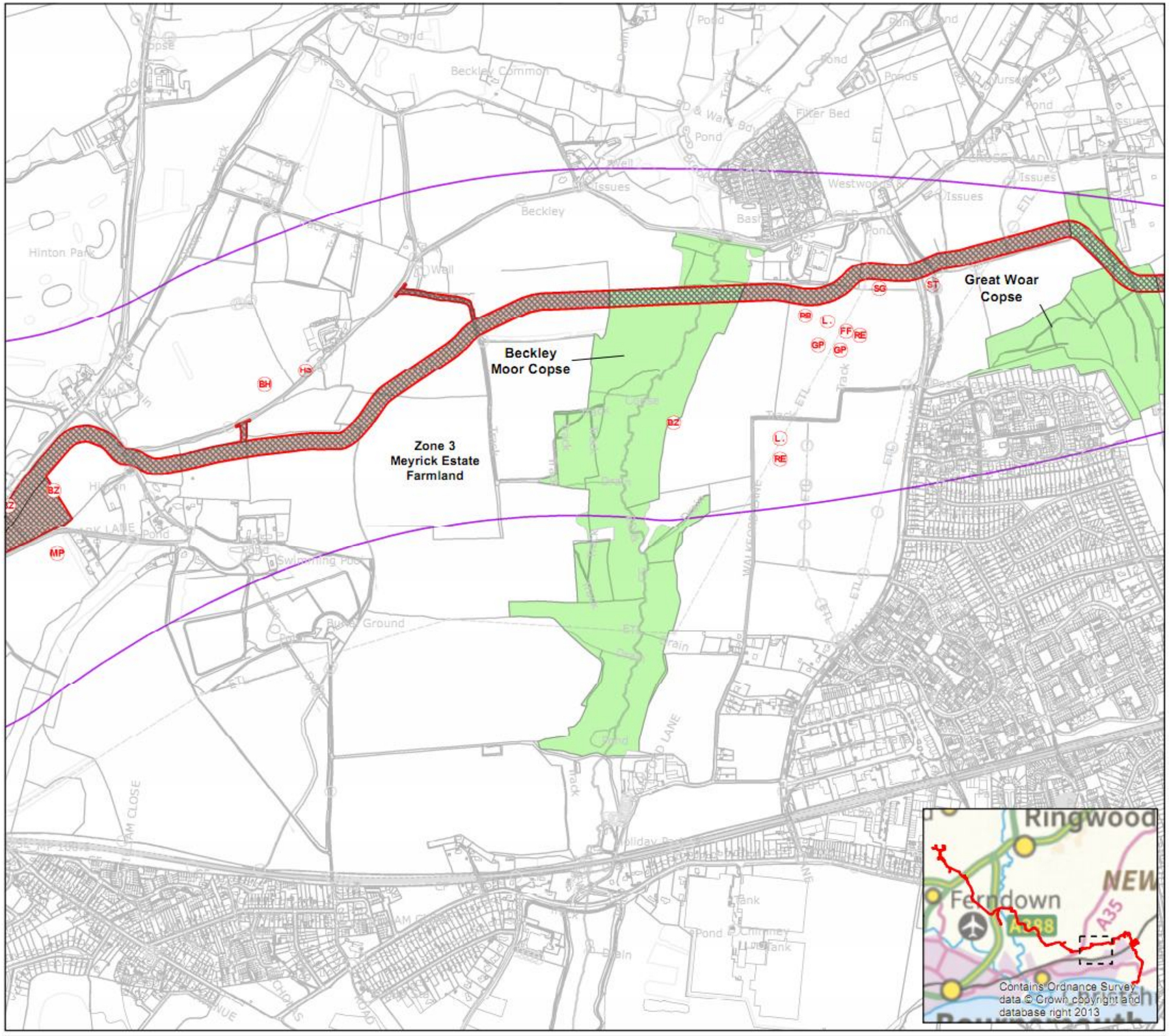

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Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Broadleaved Woodland
- Farmland
- Zone

Fig. No.: Figure 28.2c		**Date:** 10/08/2013
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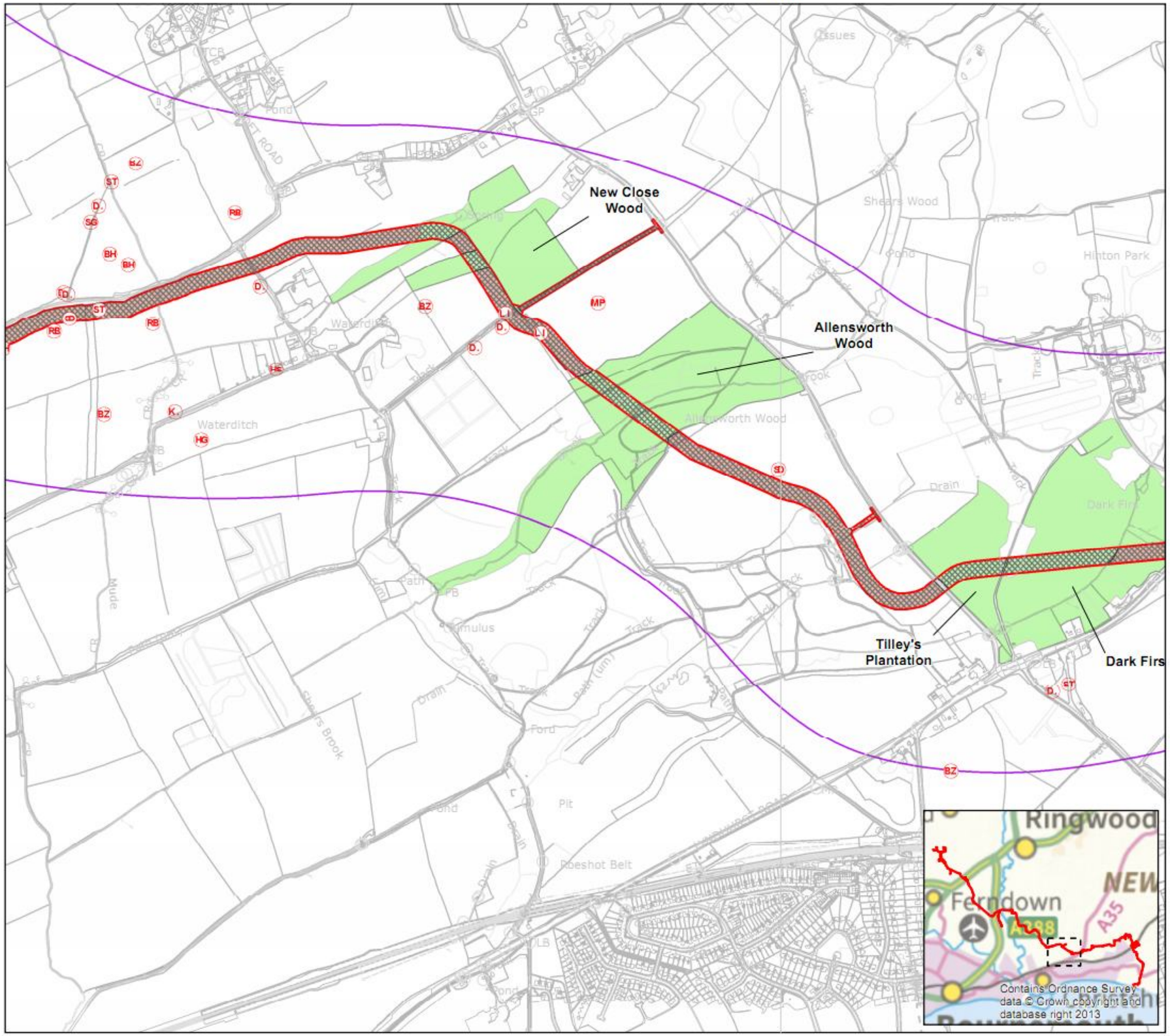

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Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Broadleaved Woodland
- Farmland
- Zone

Fig. No.: Figure 28.2d		**Date:** 10/08/2013
Author: NS	**Checked:** TD	**Approved:** PF
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Coordinate System: British National Grid		**Data Sources:** OS ECOSA Dec 2011 and July 2012
Datum: OSGB 1936	**Ref. No.:** 11355	

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Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

Legend

Onshore Development Area

Breeding Bird Habitat Type

Farmland

Zone

Zone 4
Avon Tryell Estate
Farmland

Zone 3
Meyrick Estate
Farmland

Fig. No.: Figure 28.2e		**Date:** 10/08/2013
Author: NS	**Checked:** TD	**Approved:** PF
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Coordinate System: British National Grid		**Data Sources:** OS ECOSA Dec 2011 and July 2012
Datum: OSGB 1936	**Ref. No.:** 11356	

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Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

100000

Zone 5
Avon River Valley

Avon Heath Plantation

Slape Copse

River Avon

Long Acre Plantation

Zone 4
Avon Tryell Estate Farmland

Ripley

Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Avon River Valley
- Broadleaved Woodland
- Coniferous Woodland
- Farmland
- Hurn Forest, West Moors and Avon Heath Plantation
- Zone

Fig. No.: Figure 28.2f		**Date:** 10/08/2013
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Scale@A3: 1:10,000		**Revision No.:** 01
Coordinate System: British National Grid		**Data Sources:** OS ECOSA Dec 2011 and July 2012
Datum: OSGB 1936	**Ref. No.:** 11357	

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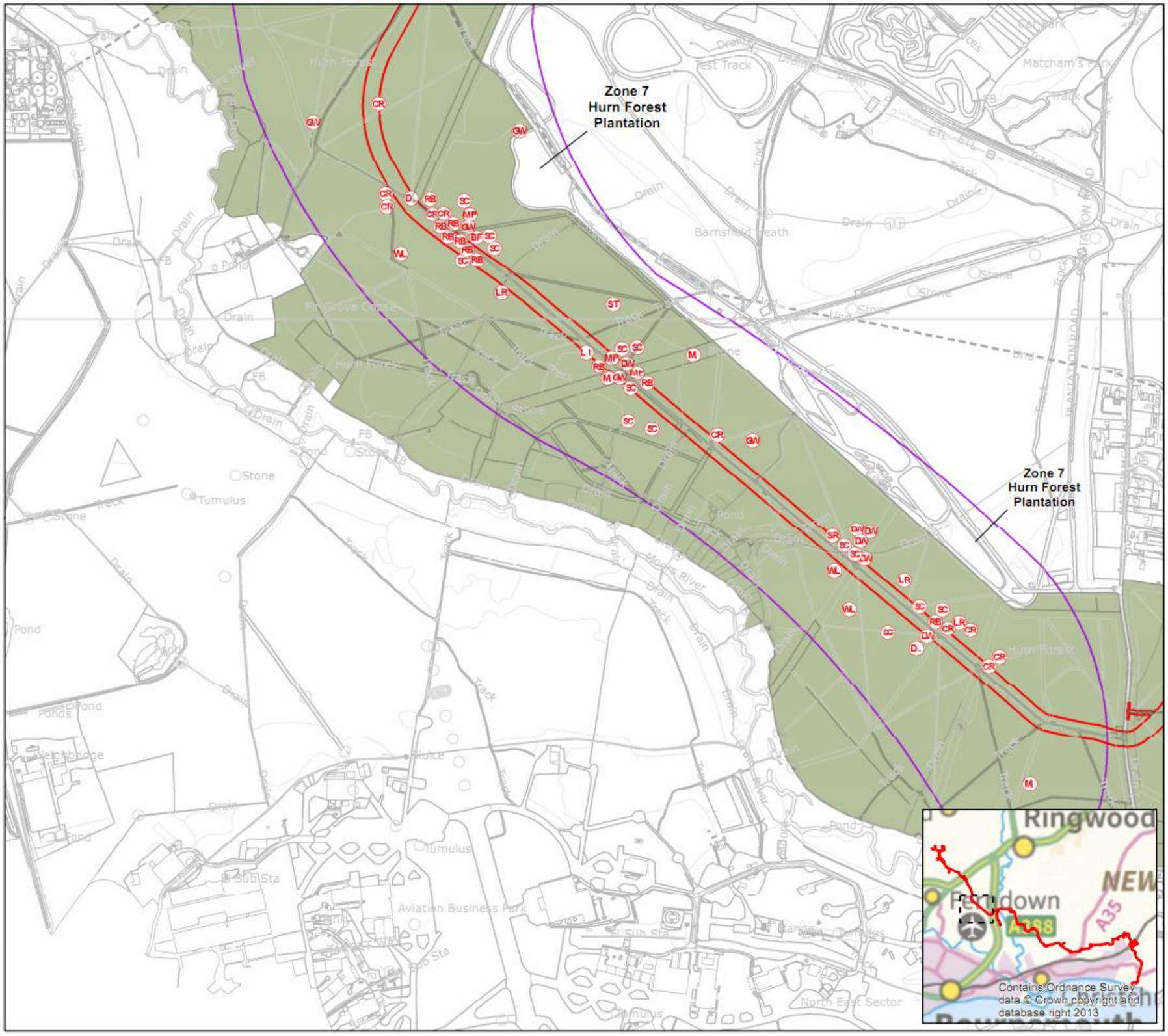
Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records



Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Hurn Forest, West Moors and Avon Heath Plantation
- Zone

Fig. No.: Figure 28.2g		**Date:** 10/08/2013
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Coordinate System: British National Grid		**Data Sources:** OS ECOSA Dec 2011 and July 2012
Datum: OSGB 1936	**Ref. No.:** 11358	

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Zone 9
West Moors
Plantation

East Moors
Wood

Moors River

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Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records

Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Broadleaved Woodland
- Farmland
- Hurn Forest, West Moors and Avon Heath Plantation
- Zone

Fig. No.: Figure 28.2h		**Date:** 10/08/2013
Author: NS	**Checked:** TD	**Approved:** PF
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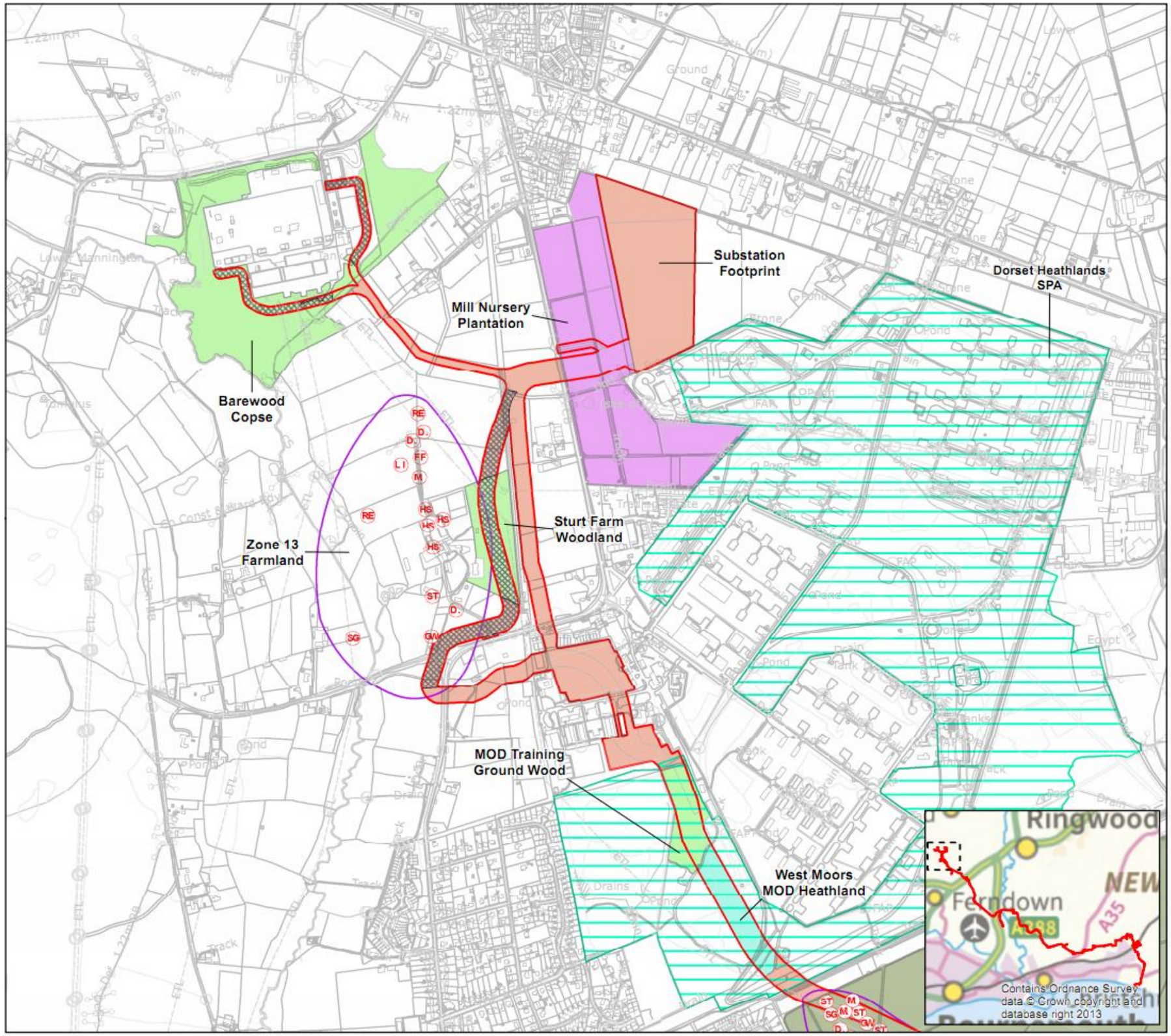
Onshore Cable Route Breeding Bird Habitats and Wintering Bird Records



Legend

- Onshore Development Area

Breeding Bird Habitat Type

- Broadleaved Woodland
- Coniferous Woodland
- Farmland
- Hurn Forest, West Moors and Avon Heath Plantation
- West Moors MOD Heathland
- Zone

Fig. No.: Figure 28.2i		**Date:** 10/08/2013
Author: NS	**Checked:** TD	**Approved:** PF
Scale@A3: 1:10,000		**Revision No.:** 01
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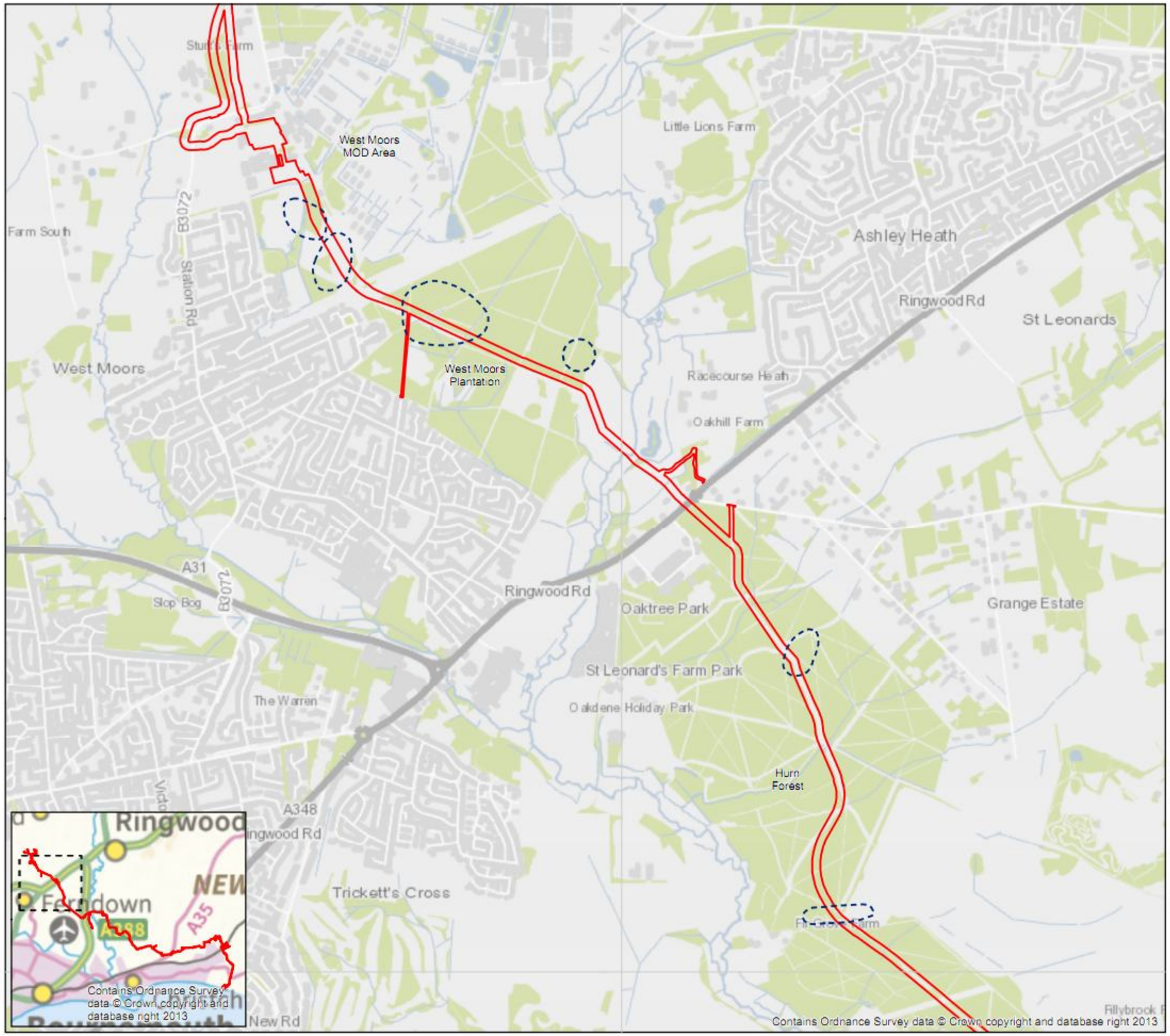

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Onshore Cable Route Location of Nightjar Territories

Legend

- Nightjar Territory Boundary
- Onshore Development Area

Fig. No.: Figure 28.3		**Date:** 10/08/2013
Author: NS	**Checked:** TD	**Approved:** PF
Scale@A3: 1:20,000		**Revision No.:** 01
Coordinate System: British National Grid		**Data Sources:** OS and Thomson Ecology Survey: FENC102/006/001
Datum: OSGB 1936	**Ref. No.:** 12448	

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21.5. Impact Assessment

21.98. Thirty-two species (12 of 32 noted during breeding surveys only, 14 of 32 recorded during winter survey only and 6 of 32 were noted throughout the year) were identified during current survey programme that are of sufficient nature conservation value (within and/or adjacent to the development area) for a potential significant impact on their local populations to be realised without the implementation of embedded or additional mitigation measures. These species (listed in Table 28.7) are associated with the major habitat types identified in the survey area, namely farmland, broad-leaved woodland, heathland/coniferous plantation mosaic and the Avon River Valley. These populations could be affected through direct mortality associated with construction, temporary loss/damage of habitat and disturbance/displacement of individual birds.

21.5.1. Disturbance of birds wintering in the Avon River Valley SPA and Ramsar site

21.99. The Avon River Valley supports a range of wintering birds including wildfowl, waders and raptors. The habitats that are used by these birds would not be damaged by the Project as the cable will be installed across the river using trenchless crossing methods (in this instance a technique known as Horizontal Directional Drilling or 'HDD').

21.100. The construction compounds on either end of the HDD section would be at a suitable distance from the river and would also be screened from the river by existing stands of trees on both sides. Despite these compounds being set back from the river, wintering birds present could still be subject to disturbance from construction activities at the compounds. Activities within the proposed construction compounds close to the River Avon, with the potential to cause disturbance to birds include noise and movement emanating from machinery, vehicles, the workforce and security patrols/lighting.

21.101. These activities would occur during the construction phase of the development, for a period of approximately 8 - 12 weeks which could include the period when wintering birds are present in the Avon River Valley.

21.102. During the decommissioning phase the joint bays would be removed and the cables cut and capped. This process would require less staff and machinery than installation and is likely to last for no more than two weeks at either of the locations close to the river.

21.103. The potential impact of disturbance during the construction phase on wintering birds on the Avon River Valley are summarised in Table 28.9.

Table 28.9 Impacts on wintering birds from disturbance in the Avon River Valley

Mechanism	Disturbance
Feature	Wintering birds using the River Avon including Bewick's swan and gadwall.
Value of feature	International to County value (dependent on species).
Phase	Construction and decommissioning.
Activity	Operation of HDD construction compounds would result in noise, movement and lighting stimuli that could be visible or audible to wintering birds. Decommissioning works (i.e. breaking out of joint bays) would result in noise, movement and lighting stimuli that could be visible or audible to wintering birds.
Positive/Negative	Negative Impacts on wintering birds from disturbance in the Avon River Valley.
Magnitude	International (4 Bewick's swans representing 3% of the Avon Valley SPA) and UK (wildfowl and waders as cited features on the Avon Valley (Bickton to Christchurch) SSSI.
Extent	It is estimated that birds could be disturbed up to 250 m from the compounds. This covers a section of the Avon River Valley that is approximately 350 m (east to west) and 250 m (north to south).

Table 28.9 Impacts on wintering birds from disturbance in the Avon River Valley	
Duration	The construction compounds would be operational for approximately 8 - 12 weeks, all or part of which may be during the winter months. Decommissioning works are unlikely to take more than 4 weeks to complete.
Frequency	The impact would occur, at most, during one wintering bird season only during construction and once during decommissioning.
Reversibility	The impact is reversible.
Timing	Construction and decommissioning phases.

21.104. The area from which birds could be subject to disturbance from construction activities is a small proportion of the total area of suitable river valley habitats available to overwintering birds within the Avon River Valley (i.e. Avon Valley SPA covers an area of 1385 ha of which approximately 22 ha or about 1.6% could be disturbed). Birds displaced by activities during construction and decommissioning are likely to be able to find other suitable feeding and resting areas within close proximity without compromising fitness. Due to this it is uncertain whether the impact would be **Significant**. Therefore, further evaluation and consultation will be undertaken and if necessary a further wintering bird survey would be undertaken in these proposed compound areas to assess their usage by the receptor bird species.

21.5.2. Impacts on nightjars using heathland habitats

Habitat loss

21.105. Open cut trenching techniques are likely to be used to install the cables through Hurn Forest and West Moors Plantation. This would require site clearance over the 40 m working width for a length of 5 km in Hurn Forest, where two nightjar territories were recorded and in West Moors Plantation, where two nightjar territories were also recorded. Excavation will also be needed within the West Moors MOD site to establish a drilling compound. Direct impacts from mortality or injury of nightjars would be avoided by proposed mitigation. This could include measures such as further pre-construction nightjar surveys that would map breeding territories within the designated areas (and other suitable heathland habitat). This would allow the cable corridor alignment to be narrowed or amended, if necessary to reduce potential effects on breeding sites.

21.106. Site clearance would potentially result in habitat loss that would reduce the available areas for nightjar foraging and nesting. This would have an impact which would be negative, temporary and would last until habitats are reinstated. However, nightjar are known to travel an average of 3.1 km from nesting areas on the Dorset Heathlands SPA, presumably for foraging purposes (Alexander & Cresswell, 1990) suggesting that relatively small levels of habitat loss in localised areas are unlikely to detrimentally affect this wide-ranging bird. However, the potential quality of the working area as a foraging site is unknown and the effect can therefore not be easily quantified.

21.107. The impact of habitat loss during the construction phase on nightjars in is summarised in Table 28.10.

21.108. Additional mitigation measures are still being finalised, in discussion with relevant statutory consultees, that would seek to minimise these predicted impacts. Further details of the embedded mitigation to be adopted (such as associated with the construction techniques and approach) will be included within the ES that will form part of the application for development consent.

Table 28.10 Impacts on nightjar due to habitat loss	
Mechanism	Habitat Loss
Feature	Nightjar
Value of feature	International
Phase	Construction
Activity	Clearance of ground vegetation to allow open trenching techniques.
Positive/Negative	Negative
Magnitude	International (Up to six nightjar territories representing 1.6% of the Dorset Heathlands SPA population).
Extent	The area of temporary habitat lost in Hurn Forest could be up to 200,000 m^2 and in West Moors Plantation up to 44,000 m^2. The temporary habitat lost at the West Moors MOD site could be up to 0.6 ha.
Duration	The impact would last up to one year before ground vegetation becomes re-established.
Frequency	Nightjars would be impacted for one summer breeding season.
Reversibility	The impact is reversible as habitats would be reinstated.
Timing	Summer of years two or three.

21.109. Without mitigation the impact on nightjars resulting from habitat loss during site clearance is likely to be **Significant**.

Disturbance

21.110. Disturbance of nesting nightjars could result from vehicle movements, machinery operation and the presence of a workforce at the construction compounds and in open trenching areas. Birds may be displaced by disturbance from areas within the onshore elements of the Project.

21.111. The characterisation of the impact from disturbance on nightjars is summarised in Table 28.11.

Table 28.11 Impacts on nightjar due to disturbance	
Mechanism	Disturbance
Feature	Nightjar
Value of feature	International
Phase	Construction and decommissioning.
Activity	Operation of construction compounds and open trenching works will cause noise, movement and lighting that could be visible or audible to nightjars which are nesting or foraging.
Positive/Negative	Negative
Magnitude	International (Up to six nightjar territories representing 1.6% of the Dorset Heathlands SPA population).
Extent	It is estimated that nightjars could be disturbed up to 250 m from the compounds and open trenching works.
Duration	The works within Hurn Forest, West Moors Plantation and West Moors MOD site would not take place concurrently. However, localised disturbance within these sites could occur for up to 24 weeks during the construction phase.
Frequency	The impact would occur during one summer breeding season only.
Reversibility	The impact is reversible.
Timing	Summer of year two or three.

21.112. The source of disturbance would be confined to relatively small areas, however if a nightjar nest is present within this area there is the potential that it could be disturbed. This disturbance impact, without mitigation, is considered to be likely **Significant**.

21.6. Potential Mitigation

21.6.1. Avon river valley wintering birds

21.113. Direct impacts on overwintering birds in the Avon River valley would be avoided by the use of trenchless crossing techniques and scheduling of works to avoid disturbance in the winter months.

21.114. No construction or decommissioning works would be undertaken between November and February within 250 m of the River Avon. This would ensure that the potential to disturb over-wintering birds during the coldest months (i.e. when energetic stress is likely to be at its greatest) would be avoided.

21.115. During the remaining months of September, October and March, when over-wintering birds may be present, the following working practices would be implemented to minimise potential sources of disturbance. These measures would include the following:

- Design of site lighting to minimise light spillage into neighbouring areas by the use of down lighting and shades;
- Restriction of workforce to the confines of the compound and designated access routes; and
- The boundaries of compounds would have netting erected to reduce potential disturbance arising from activity from the compounds.

21.116. The use of trenchless techniques, scheduling of screening of the drilling outside of the main winter period and the precautions set out above, means that the impact on the wintering birds using the River Avon would be greatly reduced due to movement. The assessment within the ES is therefore likely to conclude that this effect is successfully reduced to not be significant once the consultations are completed and the mitigation measures finalised.

21.6.2. Nightjar

21.117. Mitigation works for heathland and sand lizard within Hurn Forest have also been designed to benefit nightjars (and other heathland birds). Habitat receptor sites created to enable the translocation of sand lizards would require the conversion of existing or recently felled or stocked conifer plantation into open heathland habitat, prior to construction commencing in the area. Increasing the proportion of open habitats within the forestry area would benefit nightjars by increasing the area of habitat available for foraging, nesting and display. This habitat creation would be undertaken in consultation with NE and the Forestry Commission and with regard to the existing Forestry Plan which aims to increase biodiversity value around sites close to the Project in Hurn Forest.

21.118. Following site clearance and the completion of construction / decommissioning activities, habitats within the working area would be re-instated. Where possible, similar habitat types would replace those cleared. Re-establishment of heathland and grassland in the area would be carried out by replacement of turfs that would be cut and stored during construction or through natural re-colonisation and supplementary native species planting.

21.119. Where coniferous plantation has been removed to allow the placement of the cables, areas of heathland and coarse grassland habitat types would be established. Consequently, following re-instatement there is likely to be a higher proportion of heathland and coarse grassland habitat than pre-development within the Onshore Development Area. It is not considered that this change would affect the overall characteristic of the area but it is likely to benefit bird species such as nightjar.

21.120. As the amount of habitat available to nightjar already varies annually, the potential for the temporary habitat loss associated with cable installation is small, especially with regard to the additional mitigation measures described.

21.121. Further survey for nightjar nests would be undertaken immediately prior to construction and decommissioning works in all suitable habitats within 250 m of the working area. If nesting nightjars are found to be present and there is a risk of destruction or disturbance of nests, works would be re-scheduled as appropriate. Natural England would be informed of the location of nests and suitable mitigation measures (i.e. size of exclusion zone, scheduling of works) agreed with them prior to works continuing.

21.122. Risks of disturbance to nightjars due to the diversion of dog walkers from working areas within Hurn Forest and West Moors Plantation would be avoided by ensuring clearly marked diversion routes are available. These routes would make the shortest possible detours and would take account of the nightjar survey results so that dog walkers and other recreational users

are directed away from nesting nightjars. As the works would be localised at any given time the detours would be short and would not particularly inconvenience users. To facilitate this process a wardening scheme would be implemented in conjunction with the Forestry Commission.

21.123. The assessment within the ES is therefore likely to conclude that these disturbance effects are successfully reduced to not be Significant once the consultations are completed and the range of mitigation measures finalised.

21.124. Mitigation measures are being identified in discussion with relevant statutory consultees which would seek to minimise predicted impacts.

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Glossary

TERM	DEFINITION
Breeding bird survey	Surveys undertaken to identify the types of birds breeding in an area and identify their territories.
Breeding period	The time when birds in the UK are mostly breeding (approximately considered to be April through July for most birds)
Embedded mitigation	Mitigation that is incorporated into the project design to avoid or minimise the impact on habitats or species.
Migrant birds	Those birds that move from winter quarters to breeding areas (or vice versa).
Passage period	The times during spring and autumn when many birds are travelling between their winter quarters to areas in which they breed (or vice versa).
Phase 1 habitat survey	Field survey technique which provides a relatively rapid system to record and map semi-natural vegetation and other wildlife habitats.
Recreational disturbance	Disturbance of nesting birds by people undertaking recreational activities such as dog walking, cycling etc.
Winter bird survey	Surveys undertaken to categorise the wintering bird community present in an area.
Winter period	The winter months (approximately considered to be October through February for most birds)

Abbreviation

TERM	DEFINITION
BAP	Biodiversity Action Plan
BoCC	Birds of Conservation Concern
CBC	Christchurch Borough Council
CIEEM	Chartered Institute of Ecology and Environmental Management
dB(A)	A-weighted decibels
DCC	Dorset County Council
DERC	Dorset Environmental Records Centre
DWT	Dorset Wildlife Trust
EA	Environment Agency
ECoW	Ecological Clerk of Works
EMMP	Environmental Monitoring and Mitigation Plan
ha	Hectare
HBIC	Hampshire Biological Records Centre
HDD	Horizontal Directional Drilling
H+IoWWT	Hampshire and Isle of Wight Wildlife Trust
HRA	Habitats Regulations Assessment
IEEM	Institute of Ecology and Environmental Management
IPC	Infrastructure Planning Commission (now the Planning Inspectorate)
JNCC	Joint Nature Conservation Committee
km	kilometre
m	metres
MOD	Ministry of Defence
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act

TERM	DEFINITION
NPPF	National Planning Policy Framework
NPS	National Planning Policy
RSPB	Royal Society for the Protection of Birds
S41	Section 41
SAC	Special Areas of Conservation
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WCA	Wildlife and Countryside Act