



Habitats Regulations Assessment of the Purbeck Local Plan Review, Main Modifications

Authors: Rachel Hoskin, Durwyn Liley & Chris Panter

FOOTPRINT ECOLOGY, FOREST OFFICE, BERE
ROAD, WAREHAM, DORSET BH20 7PA
WWW.FOOTPRINT-ECOLOGY.CO.UK
01929 552444



FOOTPRINT
ECOLOGY

Footprint Contract Reference: 602

Date: 23rd October 2020

Version: Final

Recommended Citation: Hoskin, R., Liley, D. & Panter, C. (2020) Habitats Regulations Assessment of the Purbeck Local Plan Review, Main Modifications. Unpublished report for Dorset Council.

Summary

This report provides the Habitats Regulations Assessment (HRA) of the plan review of the Purbeck Local Plan 2018-2034 (the Plan or Purbeck Local Plan) at Main Modifications. This HRA report is an update of previous iterations at the Issues and Options in 2015, at Options in 2016, a specific housing consultation called New Homes for Purbeck in 2018 and at submission. The modifications have been produced following examination in public and direction from the Inspector.

HRA is the step by step process of ensuring that a plan or project being undertaken by, or permitted by a public body, will not adversely affect the ecological integrity of a European wildlife site. This is because European legislation, which is transposed into domestic legislation and policy, affords European sites the highest levels of protection. The Purbeck area is potentially unique in the extent, range and number of different protected sites, with 20% of the Local Plan area being internationally designated site.

The Purbeck Local Plan at Main Modifications references a range of mitigation measures which protect the European sites. A number of strategic level mitigation schemes have been developed, providing a robust mechanism to ensure that development does not adversely affect the European sites, primarily focussed on the Dorset Heathlands and Poole Harbour. An interim air quality mitigation strategy is also in place.

This HRA has screened all policies and allocations for likely significant effects on European sites. Due to their proximity, allocations will require effective mitigation in line with the established strategic approaches for the Dorset Heathlands and Poole Harbour. For the housing sites, it is anticipated that adherence to the strategic mitigation approaches will provide adequate protection for the European sites, but it will be important for site specific considerations to be taken into account for each mitigation package. There are identified uncertainties and need for project level HRA in relation to some employment sites. At the plan level, it is concluded that adverse effects on European sites can be prevented with adequate safeguards at the project level.

Over the development of the plan there have been proactive discussions and consideration of mitigation of options with Natural England, and this has enabled good progress to be made in terms of agreeing and securing areas for alternative greenspace to reduce recreation pressures.

Contents

Summary	3
Contents	4
Acknowledgements	6
1. Introduction	7
Context	7
Habitats Regulations Assessment process	8
<i>European sites</i>	9
<i>Process</i>	10
<i>Definitions, references to case law and guidance</i>	13
2. European sites in and around Purbeck	15
Introduction	15
Overview of European sites	15
<i>Poole Harbour</i>	16
<i>The Dorset Heaths</i>	16
<i>The Dorset Coast</i>	17
<i>Forestry blocks outside the European site boundaries</i>	17
3. Housing growth proposals for Purbeck and HRA work to date	22
HRA for PLP1	22
HRA to date for the Purbeck Local Plan review	26
<i>Housing needs evidence base</i>	27
The Submission Publication of the Local Plan	28
Main Modifications	29
4. Screening the Local Plan for Likely Significant Effects	34
What constitutes a likely significant effect?	34
Identifying impact pathways	36
Identifying European sites potentially at risk	36
Screening conclusions	41
5. Appropriate assessment: Recreation and urban effects on the Dorset Heaths	59
Relevant policies from LSE screening	59
Introduction	59

Mitigation	62
Review of Dorset Heathland Mitigation to date.....	63
<i>Bird data</i>	64
<i>Engagement</i>	64
<i>SANGs</i>	65
<i>Review of mitigation options and approaches to mitigation elsewhere</i>	66
SANG considerations and specific mitigation for different allocations	68
<i>Wool</i>	69
<i>Redbridge Pit/Moreton Station</i>	70
<i>Lytchett Matravers</i>	70
<i>Upton</i>	71
<i>Small housing sites</i>	71
<i>Wareham – Neighbourhood plan housing allocations</i>	72
<i>Bere Regis – Neighbourhood plan housing allocation</i>	73
Morden Park SANG and holiday park.....	73
<i>Potential for SANG</i>	75
EE1 – Employment land supply.....	76
Conclusions: recreation and urban effects	77
6. Appropriate assessment: Fragmentation and mobile species	78
River Avon SAC.....	78
Dorset Heathlands SPA/Ramsar	80
Employment sites.....	83
<i>Holton Heath Trading Park</i>	83
<i>Dorset Innovation Park</i>	84
Conclusions: fragmentation and mobile species	84
7. Appropriate assessment: Recreation at non-heathland sites	85
Introduction.....	85
Coastal SAC sites and recreation	86
Poole Harbour and Recreation	88
Conclusions: Recreation at non-heathland sites.....	89
8. Appropriate assessment: Water quality.....	91
Poole Harbour and Nutrients	91
<i>Securing mitigation for nutrient enrichment within Purbeck</i>	92
<i>Plan review requirements for Poole Harbour nutrients</i>	93
Conclusions: Water Quality.....	93

9.	Appropriate assessment: Air quality.....	94
	Introduction.....	94
	<i>Summary of atmospheric pollution</i>	95
	Recent case decisions and guidance	96
	<i>Guidance on assessing air quality impacts for designated sites</i>	96
	<i>The Wealden Judgment</i>	97
	<i>European Court - Joined Cases C-293/17 and C-294/17</i>	97
	<i>Natural England Guidance</i>	98
	Roads and European sites in Purbeck.....	99
	Predictions of traffic flows	102
	Conclusions: Air Quality	104
10.	Conclusions.....	105
11.	References	107
	Appendix 1: European Site Conservation Objectives	114
	Appendix 2: Conservation Interest of European Sites	116

Acknowledgements

This report was commissioned by Purbeck District Council (now Dorset Council). Throughout the HRA work for the new Purbeck Local Plan we are grateful to Sue Bellamy, Steve Boyt, Steve Tapscott and Frances Summers at Dorset Council for their support and the provision of information.

Our thanks also to Sue Burton (Natural England), Michael Holm (Environment Agency), Annabel King (Dorset Council), Andrew Nicholson (Natural England) and Nick Squirrell (Natural England) for useful discussion, advice and comment.

1. Introduction

Context

- 1.1 This report provides the Habitats Regulations Assessment (HRA) of the Purbeck Local Plan 2014-2034 (the Plan or Purbeck Local Plan). The Purbeck Local Plan sets out the approach and detailed policies for the area that was previously Purbeck District, for the period up to 2034. During the period the Plan was being developed, Dorset Council was created, a new unitary authority covering most of Dorset and administering most of the area formerly administered by Dorset County Council and previously subdivided into the districts of Weymouth and Portland, West Dorset, East Dorset as well as Purbeck. Despite the new council being unitary, the previous plans for the old districts remain relevant, until the new Dorset Local Plan is adopted (potentially around 2023).
- 1.2 The HRA has been updated at each stage of the Local Plan review, with an update to the report being prepared at each public consultation stage. This HRA report supports the publication of the Main Modifications for consultation in 2020. It follows previous iterations of this HRA report at:
- Issues and Options in 2015,
 - Options in 2016,
 - New Homes for Purbeck' in early 2018
 - Pre-submission in September 2018
- 1.3 The current Local Plan (PLP1) was adopted in November 2012. The current PLP1 is the overarching planning document, steering development management in the Purbeck area. There are also several other planning documents, including a specific plan for Swanage that was adopted in 2017, Minerals and Waste Local Plans produced jointly for Dorset, and a number of neighbourhood plans and supplementary planning documents. The Government requires local planning documents to be continually reviewed in order to remain up to date and informed by current evidence on local economic, social and environmental needs, and national legislation and planning policy. At the time of adoption, PLP1 followed a precautionary approach in planning for less housing than the housing need evidence base at the time suggested was required for the plan period. The Planning Inspector who examined the PLP1 concluded that the plan was sound, and Purbeck District Council was right to adopt the precautionary approach in the short term, with the intention of exploring the potential for higher housing growth through a separate partial review, by 2017.
- 1.4 The precautionary approach for PLP1 was taken because when the plan was adopted, the available information did not provide enough evidence to demonstrate that a higher level of growth could proceed without impacts on

European wildlife sites. Purbeck has exceptional nature conservation and landscape value, with much of the area covered by national or international environmental designations

- 1.5 The HRA reports at the earlier stages of this plan (Purbeck Local Plan 2018-2034) have focussed on the potential impact of higher levels of residential development in the Purbeck area, and the potential options for measures to avoid or mitigate any identified impact. In addition to evidence relating to growth needs, this report draws together all available evidence relating to European site impacts and opportunities to prevent those impacts from occurring, to consider how the levels of growth now required for the Purbeck area could potentially be accommodated without adverse effects on European sites.
- 1.6 The previous version of the HRA accompanied the submission version of the Plan. The examination began in January 2019 and continues until the Inspector's report is published. The Council has now produced a schedule of Main Modifications, which take into account the discussions at the examination hearing sessions and direction from the Inspector. This HRA is based on a schedule of Main Modifications provided to Footprint Ecology in October 2020.

Habitats Regulations Assessment process

- 1.7 The designation, protection and restoration of European wildlife sites is embedded in the Conservation of Habitats and Species Regulations 2017, as amended which are commonly referred to as the 'Habitats Regulations.' The most recent version of the Habitats Regulations does not affect the principles of European site assessment as defined by the previous Regulations, and which forms the focus of this report. Regulation numbers have changed from the 2010 Regulations. A further update was made in 2018.
- 1.8 The 2017 Habitat Regulations remain in force without any of the amendments relating to Brexit made by The Conservation of Habitats and Species (Amendment) (EU exit) Regulations 2019. These Brexit-related changes are suspended until Implementation Period Completion day and confirm that these provisions will be retained, in the short term at least.
- 1.9 The Habitats Regulations are in place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect,

conserve and restore habitats and species that are of utmost conservation importance and concern across Europe.

European sites

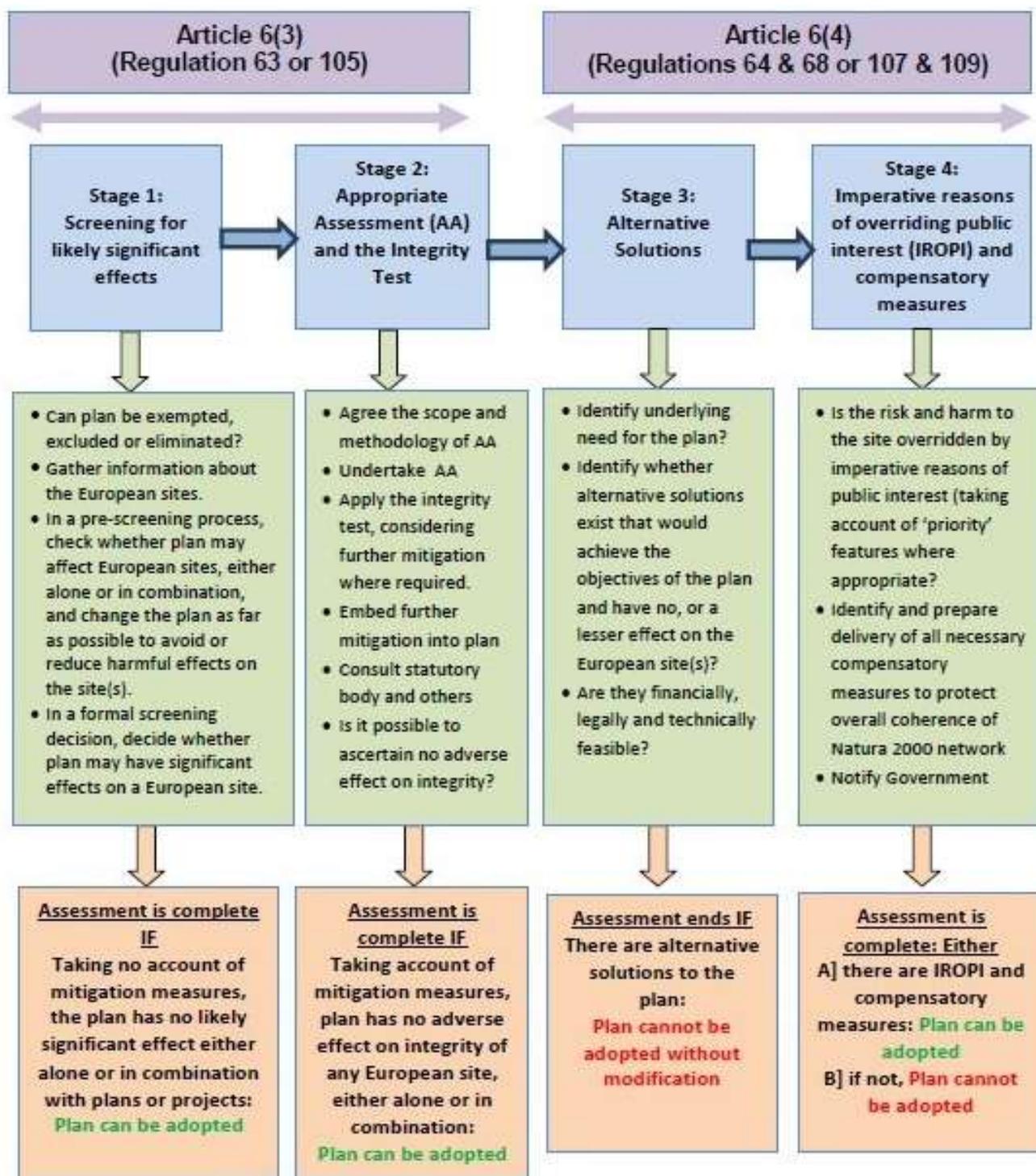
- 1.10 The European Directives operate on the basis that sites are in place to serve as an ecologically functioning network, and ultimately it is the preservation of that network as a whole that is the overall aim of the European Directives. The network is often referred to as the Natura 2000 Network or 'N2K.'
- 1.11 N2K sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive. The suite of sites includes those in the marine environment as well as terrestrial, freshwater and coastal sites. These N2K sites have the benefit of the highest level of legislative protection for biodiversity. Member states have specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted, with a precautionary approach embedded in the legislation, i.e. it is necessary to demonstrate that impacts will not occur, rather than they will. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. Where sites are not achieving their potential, the focus should be on restoration.
- 1.12 The UK is also a contracting party to the Ramsar Convention, which is a global convention to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. In order to ensure compliance with the requirements of the Convention, the UK Government expects all competent authorities to treat listed Ramsar sites as if they are part of the suite of designated European sites, as a matter of government policy, as set out in paragraph 176 of the National Planning Policy Framework. Most Ramsar sites are also a SPA or SAC, but, importantly, the Ramsar features and boundary lines may vary from those for which the site is designated as a SPA or SAC.
- 1.13 The NPPF requires decision makers to apply the same protection and process to Ramsar sites as that set out in legislation for European sites. Formally proposed sites, i.e. sites proposed for European designation (potential SPAs, candidate SACs and Sites of Community Importance) and going through the designation process, and those providing formal compensation for losses to European sites, are also given the same protection.

- 1.14 This report refers to all the above sites as 'European sites' for assessment purposes, as the legislation is applied to all such sites, either directly or as a result of policy.

Process

- 1.15 The step by step process of HRA is summarised in Figure 1.
- 1.16 Within the Habitats Regulations, local planning authorities, as public bodies, are given specific duties as 'competent authorities' with regard to the protection of sites designated or classified for their species and habitats of European importance. Competent authorities are any public body or individual holding public office with a statutory remit and function, and the requirements of the legislation apply where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. Regulation 63 of the Habitats Regulations sets out the HRA process for plans and projects, which includes development proposals for which planning permission is sought. Additionally, Regulation 105 specifically sets out the process for assessing emerging land use plans.

Outline of the four-stage approach to the assessment of plans under the Habitats Regulations



Extract from *The Habitats Regulations Assessment Handbook*, www.dtapublications.co.uk
 © DTA Publications Limited (October 2018) all rights reserved
 This work is registered with the UK Copyright Service

Figure 1: Outline of the assessment of plans under the Habitat Regulations

- 1.17 Throughout all stages, there is a continual consideration of the options available to avoid and mitigate any identified potential impacts. A competent authority may consider that there is a need to undertake further levels of evidence gathering and assessment in order to have certainty, and this is the Appropriate Assessment stage. At this point the competent authority may identify the need to add to or modify the project in order to adequately protect the European site, and these mitigation measures may be added through the imposition of particular restrictions and conditions.
- 1.18 For plans, the stages of HRA are often quite fluid, with the plan normally being prepared by the competent authority itself. This gives the competent authority the opportunity to repeatedly explore options to prevent impacts, refine the plan and rescreen it to demonstrate that all potential risks to European sites have been successfully dealt with.
- 1.19 When preparing a plan, a competent authority may therefore go through a continued assessment as the plan develops, enabling the assessment to inform the development of the plan. For example, a competent authority may choose to pursue an amended or different option where impacts can be avoided, rather than continue to assess an option that has the potential to significantly affect European site interest features.
- 1.20 After completing an assessment, a competent authority should only approve a project or give effect to a plan where it can be ascertained that there will not be an adverse effect on the integrity of the European site(s) in question. In order to reach this conclusion, the competent authority may have made changes to the plan, or modified the project with restrictions or conditions, in light of their Appropriate Assessment findings.
- 1.21 Where adverse effects cannot be ruled out, there are further exceptional tests set out in Regulation 64 for plans and projects and in Regulation 107 specifically for land use plans. Exceptionally, a plan can only be adopted for imperative reasons of overriding public interest where adverse effects cannot be ruled out and there are no alternative solutions. It should be noted that meeting these tests is a rare occurrence and ordinarily, competent authorities seek to ensure that a plan is fully mitigated for, or it does not proceed.
- 1.22 In such circumstances where a competent authority considers that a plan or project should proceed under Regulations 64 or 107, they must notify the relevant Secretary of State. Normally, planning decisions and competent authority duties are then transferred, becoming the responsibility of the Secretary of State, unless on considering the information, the planning authority is directed by the Secretary of State to make their own decision on the plan or project at the local level. The decision maker, whether the Secretary of State or

the planning authority, should give full consideration to any proposed ‘overriding reasons’ for which a plan or project should proceed despite being unable to rule out adverse effects on European site interest features, and ensure that those reasons are in the public interest and are such that they override the potential harm. The decision maker will also need to secure any necessary compensatory measures, to ensure the continued overall coherence of the European site network if such a plan or project is allowed to proceed.

Definitions, references to case law and guidance

- 1.23 The principles of case-law, government policy and best practice in HRAs are set out in the HRA Handbook (Tyldesley, Chapman, & Machin, 2020), to which Footprint Ecology subscribes. We also follow government guidance on the use of Habitats Regulations Assessment¹.
- 1.24 Drawing on the Handbook, other relevant guidance and case law, we clarify the following terms used in the flow chart (Figure 1):
- 1.25 In Stage 1, A **‘likely significant effect’** following Waddenzee², is a ‘possible significant effect; one whose occurrence cannot be excluded on the basis of objective information’. It is a low threshold and simply means that there is a risk or doubt regarding such an effect. The screening stage is a preliminary examination, sometimes described as a coarse filter, or following Waddenzee, *‘a trigger in order to determine whether an appropriate assessment must be undertaken’*. There should however be credible evidence to show that there is a real rather than a hypothetical risk of effects that could undermine a site’s conservation objectives. This was amplified in the Bagmoor Wind³ case where *‘if the absence of risk... can only be demonstrated after a detailed investigation, or expert opinion, [then] the authority must move from preliminary examination to appropriate assessment’*.
- 1.26 Following the People Over Wind judgement⁴, when making screening decisions for the purposes of deciding whether an appropriate assessment is required, competent authorities cannot take into account any mitigation measures. The

¹ <https://www.gov.uk/guidance/appropriate-assessment>

² Waddenzee: European Courts C-127/02 Waddenzee 7th September 2004, reference for a preliminary ruling from the Raad van State.

³ Bagmoor Wind: UK courts Bagmoor Wind v The Scottish Ministers, Court of Session [2012] CSIH 93

⁴ People Over Wind: European Court Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta 12 April 2018

implications are considered in more detail in the initial screening section of this report.

- 1.27 Stage 2 involves the **appropriate assessment and integrity test**. Here a plan can only be adopted if the competent authority can demonstrate that it will not adversely affect the integrity of the European site. This is a precautionary approach and means it is necessary to show the absence of harm.
- 1.28 Following Champion⁵ ‘**appropriate**’ is not a technical term but simply indicates that the assessment needs to be appropriate to the task in hand.
- 1.29 The **integrity** of a European site has been described as ‘coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified⁶. An alternative definition, after Sweetman⁷, is ‘the lasting preservation of the constitutive characteristics of the site’.
- 1.30 In terms of the burden of proof, the HRA of development plans was first made a requirement in the UK following a ruling by the European Court of Justice in EC v UK⁸. However, the judgement⁹ recognised that any assessment had to reflect the actual stage in the strategic planning process and the level of evidence that might or might not be available. This was given expression in the High Court (Feeney)¹⁰ which stated: “*Each ... assessment ... cannot do more than the level of detail of the strategy at that stage permits*”.
- 1.31 The need to consider possible **in-combination** effects arises at stage 1 – the screening and also at stage 2 – the appropriate assessment and integrity test. The effects of the plan in-combination with other plans or projects are the cumulative effects which will or might arise from the addition of the effects of other relevant plans or projects alongside the plan under consideration. If during the stage 1 screening it is found the subject plan would have no likely effect alone, but might have such an effect in-combination then the appropriate assessment at stage 2 will proceed to consider cumulative effects. Where a plan is screened as having a likely significant effect alone, the appropriate assessment should initially concentrate on its effects alone.

⁵ Champion: UK Supreme Court [2015] UKSC 52 22nd July 2015

⁶ Para 20 of the ODPM Circ. 06/2005

⁷ Sweetman: European Court C – 258/11 Sweetman 11th April 2013, reference for a preliminary ruling from the Supreme Court of Ireland

⁸ Commission v UK (C-6/04) [2005] ECR 1-9017

⁹ Commission of the European Communities v UK Opinion of Advocate General Kokott

¹⁰ Feeney: Feeny v Oxford City Council [2011] EWHC 2699 (Admin) . 24th October 2011

2. European sites in and around Purbeck

Introduction

2.1 Purbeck is potentially unique in the extent, range and number of different protected sites, with 20% of the plan area being part of an internationally designated site. This section provides an overview of all European sites in and around Purbeck.

Overview of European sites

2.2 The relevant European sites for this assessment are those considered in earlier iterations of the HRA of the emerging Local Plan, and previously for the HRA of PLP1 (see Liley & Tyldesley, 2011)¹¹. Using 20km from the former Purbeck District Council boundary as an initial area of search (20km being the maximum extent that policies could reasonably be considered to generate measurable effects), European sites are listed in Table 1 and also shown on Maps 1-3.

Table 1: European sites within the Purbeck area or where part of the European site within a 20km radius of the former Purbeck District Council boundary

SACs	SPAs	Ramsar
Cerne & Sydling Downs SAC	Avon Valley SPA	Avon Valley Ramsar
Chesil & The Fleet SAC	Chesil Beach & the Fleet SPA	Chesil Beach & the Fleet Ramsar
Crookhill Brick Pit SAC	Dorset Heathlands SPA	Dorset Heathlands Ramsar
Dorset Heaths SAC	New Forest SPA	New Forest Ramsar
Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC	Poole Harbour SPA	Poole Harbour Ramsar
Fontmell & Melbury Downs SAC	Solent and Dorset Coast SPA	
Holnest SAC		
Isle of Portland to Studland Cliffs SAC		
River Avon SAC		
Rooksmoor SAC		
St Albans Head to Durlston Head SAC		
Studland to Portland SAC		
The New Forest SAC		

¹¹ The [PLP1 HRA](#) is published as SD76 in the examination library and contains much detailed background pertinent to this, latest HRA report

- 2.3 Context for the European sites in terms of the general conservation objectives are summarised in Appendix 1. Relevant information on each European site and their qualifying features are provided in Appendix 2, which also provides links to the conservation objectives for each site.
- 2.4 Among the varied European sites, Poole Harbour, the Heaths and the coast are core to this assessment.

Poole Harbour

- 2.5 Poole Harbour is a large shallow lagoon, classified as a Special Protection Area (SPA) and listed as a Ramsar site. The SPA classification reflects the international importance of the harbour for breeding, wintering and passage birds. The use of the harbour by the various bird species is complex, with different species relying on different parts of the harbour at different times of year (See Pickess & Underhill-Day 2002; Pickess 2007; Underhill-Day 2007; Liley et al. 2009 for further details).
- 2.6 Natural England has recently confirmed an extension to the SPA, which brings in additional land in Purbeck, towards Lytchett Minster/Upton. The extension covers important foraging areas for a number of seabirds and both foraging and roosting areas for waders. The SPA now also includes three new bird species; Little Egret, Eurasian Spoonbill and Sandwich Tern.

The Dorset Heaths

- 2.7 Dorset holds some 7500 ha of heathland (see Rose et al., 2000), and much of this is designated as being of European importance. The designated sites are the Dorset Heathlands SPA, the Dorset Heaths SAC, the Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC and the Dorset Heathlands Ramsar. Given the complex mix of designations and European sites, in certain tables etc we simplify issues and use the term 'Dorset Heaths SACs/SPA/Ramsar' to encompass the 2 Dorset Heaths SACs, the Dorset Heathlands SPA and the Dorset Heathlands Ramsar.
- 2.8 The sites are also underpinned by national level wildlife designations, as Sites of Special Scientific Interest (SSSIs) – with the above European sites being comprised of over 40 SSSIs, representing different heathland patches. The designations at the international and national levels reflect the conservation importance of the sites, which hold internationally important bird species (breeding Nightjar, Woodlark and Dartford Warbler, wintering raptors such as Merlin and Hen Harrier), all six species of native British reptiles and the Southern Damselfly, a rare dragonfly found at various sites including Norden, Hartland, Creech and Corfe Common. The various rare plants include the Dorset Heath,

for which the heaths around Poole Harbour are the British stronghold. Within Purbeck there are famous heathland reserves such as Hartland Moor, Studland and Arne as well as less known sites such as Grange and Creech Heath. Virtually all the sites, apart from the tracts owned by the Ministry of Defence, have public access.

The Dorset Coast

- 2.9 The Dorset coastline is a World Heritage Site and the two coastal SACs (St Alban's Head to Durlston Head with Isle of Portland to Studland Cliffs) form a single unit of cliffed coastline some 40km in length. The hard limestone cliffs, with chalk at the eastern end (near Old Harry and near Lulworth) are interspersed with slumped sections of soft cliffs comprised of sands and clays. The cliffs support two internationally important habitats: namely the vegetated sea cliffs of the Atlantic and Baltic Coasts and the semi-natural dry grassland and scrubland faces. A number of rare plant species are associated with the grassland habitats. The largest population of Early Spider Orchid within the UK occurs on the Purbeck coast between Durlston and St. Aldhelm's Head. Other notable plant species include Wild Cabbage, Nottingham Catchfly and Early Gentian (the latter is a primary reason for the SAC designation).
- 2.10 To the north of the cliffs, the Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC includes the sand dune system at Studland.

Forestry blocks outside the European site boundaries

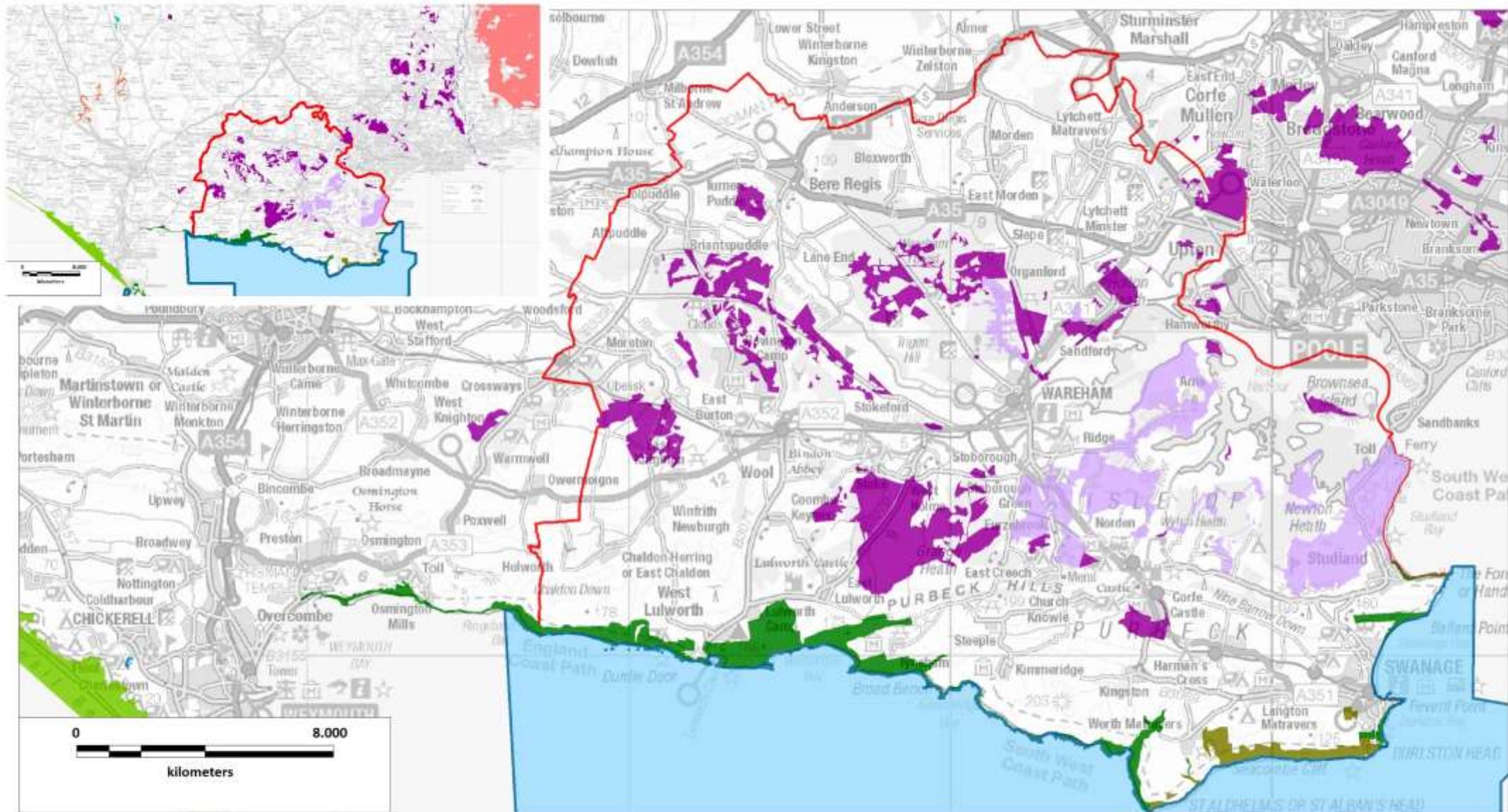
- 2.11 There are also a number of forestry sites that are not designated or classified as European sites but that hold very high numbers of Annex I bird species¹², particularly Nightjar and Woodlark. Areas holding significant populations of birds outside SPAs still need to be considered for three reasons; their role as functionally linked land, the Birds Directive requirements for Annex 1 species outside the site network, and the future potential for becoming part of the site network. Each of these is explained below.
- 2.12 Forest blocks are often contiguous with the Dorset Heathlands SPA and as such are deemed to be functionally linked to the SPA i.e. they provide an important supporting function. Impacts on functionally linked land can be significant for European site interest features, and are therefore included in a HRA.
- 2.13 The Birds Directive requires the habitat of all species listed on Annex 1 of the Directive (for which SPAs are classified) to be preserved as far as possible, by

¹² Birds listed on Annex 1 of the Birds Directive are those for which SPAs should be classified.

requiring Member States to 'strive to avoid pollution or deterioration' of such habitats.

- 2.14 Where a site has been identified as hosting the required quality, extent or populations of species, they may proceed through the selection process and become a European site in future. The NPPF requires competent authorities to treat potential sites as European sites for the purposes of assessing the impacts of plans or projects once they have been formally proposed by Government. Where sites are in the early stages of consideration before being formally proposed, Natural England suggest that it would be beneficial to have regard for such sites in decision making. This recommendation is made because there may be implications for a project if it is approved and then a formal designation is made later. In such instances a competent authority may be required to review the permission given. For these reasons, it can be beneficial to 'future proof' plans and projects by having regard for impacts on sites that may possibly come forward for designation or classification.
- 2.15 In considering areas of forestry, this HRA therefore has regard for a number of forest blocks that could be described as functionally linked land, provide notable habitat for Annex 1 species, and that also have the potential to be considered as part of the Dorset Heathlands SPA in future,
- 2.16 Key forest blocks in Purbeck include:
- Wareham Forest
 - Rempstone
 - Hethfelton
 - Moreton
 - Puddletown
- 2.17 Functionally linked habitat within Wareham Forest is particularly relevant to this HRA, given the potential allocations in close proximity. National survey data (Conway et al., 2007) shows the presence of Nightjar and Woodlark in Wareham Forest is spread throughout the forest; in both the SPA and wider forest areas. The SPA includes areas that are permanent open habitat. However, all of Wareham Forest is potentially suitable for Nightjar and Woodlark at differing times in forest management, with areas managed on rotation and therefore providing a range of clear fell and replanted areas used by the birds.

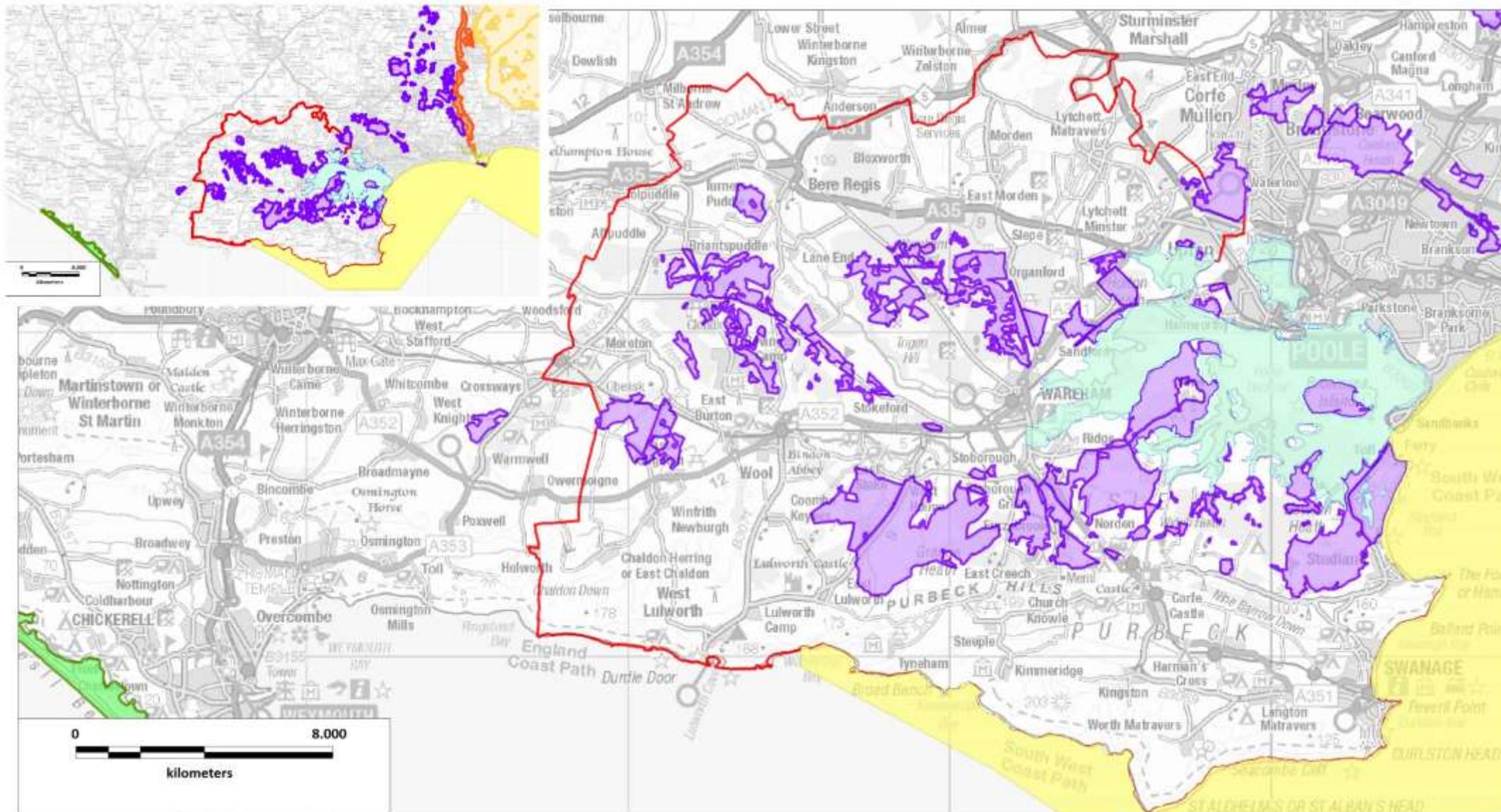
Map 1: SACs within 20km of the former Purbeck District



SACs

- | | | | |
|---|---|---|--|
| ■ Cerne & Sydling Downs | ■ Dorset Heaths (Purbeck & Wareham) & Studland Dunes | ■ River Avon | ■ The New Forest |
| ■ Chesil & The Fleet | ■ Fontmell & Melbury Downs | ■ Rookmoor | former Purbeck District |
| ■ Crookhill Brick Pit | ■ Holnest | ■ St Albans Head to Durliston Head | |
| ■ Dorset Heaths | ■ Isle of Portland to Studland Cliffs | ■ Studland to Portland | |

Map 2: SPAs within 20km of the former Purbeck District

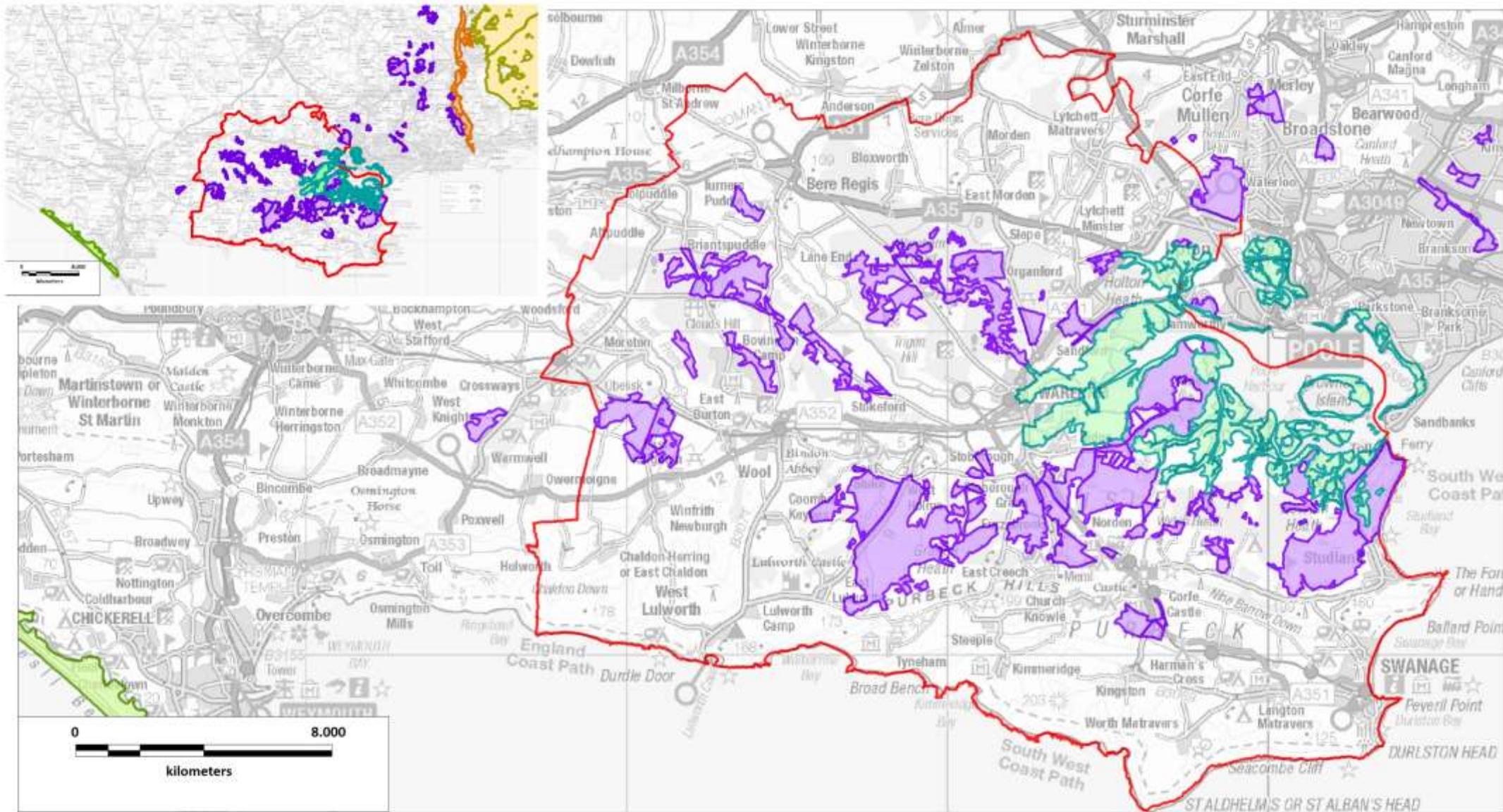


SPAs

- Avon Valley
- Chesil Beach & the Fleet
- Dorset Heathlands
- New Forest
- Poole Harbour
- Solent and Dorset Coast

former Purbeck District

Map 3: Ramsar sites within 20km of the former Purbeck District



Ramsar sites

- Avon Valley
- New Forest
- Chesil Beach & the Fleet
- Poole Harbour
- Dorset Heathlands

former Purbeck District

3. Housing growth proposals for Purbeck and HRA work to date

3.1 The European sites described in the previous section and in detail in Appendix 2 have been the subject of considerable HRA work in recent years, both specifically within the Purbeck area for the preparation and adoption of PLP1 and subsequent HRA work, focussed on Purbeck and also across Dorset as a whole. Collaborative working across authority boundaries has led to the development of agreed approaches to protecting European sites. This section provides background information on the HRA considerations to date.

HRA for PLP1

3.2 The former Purbeck District Council adopted PLP1 in November 2012. The plan sets out the provision of 2,520 dwellings (120 per annum) between 2006 and 2027. These dwellings are planned through infill development and settlement extensions to Bere Regis, Lytchett Matravers, Swanage, Upton and Wareham. The PLP1 allocates settlement extensions at Lytchett Matravers, Upton and Wareham, but the others will be allocated through neighbourhood plans and the Swanage Local Plan.

3.3 The HRA (Liley & Tyldesley, 2011) that accompanied the PLP1 was produced iteratively alongside the plan, and cross-references to a considerable evidence base that (in particular) focuses on the Dorset Heaths and Poole Harbour.

3.4 Concern regarding development in Purbeck goes back many years. For example, the increasing fragmentation of the Dorset Heaths was highlighted in the 1960s (Moore, 1962). Studies in the 1990s of fire incidence on the Dorset Heaths showed links to the levels of development (Kirby & Tantram, 1999) and reviews of urban impacts focussed on the Dorset Heaths raised widespread concerns (de Molenaar, 1998; Haskins, 2000). A previous Purbeck Local Plan (2004) was never statutorily adopted due to its failure to implement a strategic housing allocation at Holton Heath, following a public inquiry that focussed primarily on nature conservation issues.

3.5 The PLP1 contains a range of mitigation measures and draws on particular pieces of evidence that ensured confidence that the level of housing set out could be delivered. The evidence included a detailed consideration of the effects of development at Lytchett Minster (White et al., 2008), detailed considerations of the implications of different growth scenarios (Liley, Underhill-Day, et al., 2010), evidence to support HRAs relating to south east Dorset (Liley,

Clarke, Underhill-Day, & Tyldesley, 2007) and a range of visitor studies (Clarke, Liley, Underhill-Day, & Rose, 2006; Liley, Sharp, & Clarke, 2008). Mitigation measures have been carefully developed over a number of years through partnership working. With respect to the heaths, measures are now set out within the Heathland Supplementary Planning Document, and for Poole Harbour there is a Strategy for Managing Nitrogen in the Poole Harbour Catchment.

- 3.6 The NPPF requires local planning authorities to meet their objectively assessed development needs. The PLP1 did not pursue a housing target higher than 2,520 dwellings over the plan period because the HRA supporting the PLP1 was unable to conclude that the impacts of growth above this level on European protected sites could be successfully mitigated, and Natural England fully supported that conclusion.
- 3.7 The Planning Inspector who examined the PLP1 concluded that the plan was sound, and that the former Purbeck District Council was right to adopt the precautionary approach in the short term with the intention of exploring higher housing growth through a separate partial review by 2017. The principal driver behind the current plan review is therefore to investigate the possibility for heathland mitigation measures that will enable the potential delivery of higher housing growth.
- 3.8 During the earlier stages of developing the local plan the housing requirement was higher than it is now, following the introduction and revision of a standard housing need methodology. The HRAs at the earlier stages considered higher housing numbers. The Main Modifications indicate this is now set at 2,880 new homes over the plan period 2018 to 2034. This is still an increase from the currently adopted PLP1 housing figure.
- 3.9 European protected sites, and the blockages they are perceived to create in the planning system, have been the focus of Government and media attention in recent years. Defra undertook a review of the implementation of the Habitats Directive in 2012 (Defra, 2012b). Whilst the evidence clearly demonstrated that the European legislation only precluded development in a very small percentage of cases, the review made it clear that a number of improvements needed to be made, most notably with regard to available evidence for assessment, and more positive and close working between Government, Local Planning Authorities, developers and nature conservation bodies to collectively seek solutions that enabled growth and protected European site interests at the same time, wherever possible. The former Purbeck District Council has been proactive in implementing this approach.

3.10 Previous Habitats Regulations Assessment work for the PLP1 (Liley & Tyldesley, 2011) identified the following likely significant effects relating to European sites in and around Purbeck:

- Impacts of new housing and recreational pressure on the Dorset Heaths (the Dorset Heaths SAC, Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar).
- Increased recreational pressure on Poole Harbour SPA/Ramsar from shore-based and water-based activities likely to increase as a result of new housing.
- Increased recreational pressure to coastal sites as a result of enhanced transport links and housing (Isle of Portland to Studland Cliffs SAC, St Alban's to Durlston Head SAC).
- Increased recreational pressure to the New Forest (New Forest SPA/SAC/Ramsar) as a result of increased population and enhanced transport links within Purbeck.
- Water issues, including abstraction and water quality, affecting Poole Harbour SPA/Ramsar and Dorset Heaths SAC, Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar).
- Fragmentation and pressure on heathland sites (Dorset Heaths SAC, Dorset Heathlands SPA/Ramsar) as a result of employment allocation (Holton Heath).
- Air quality issues as a result of increased traffic (Dorset Heaths SAC, Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC, Dorset Heathlands SPA/Ramsar and Poole Harbour SPA/Ramsar).

3.11 The HRA for PLP1 considered that, without mitigation measures, adverse effects would be likely as a result of the plan alone, either as single elements or as a combination of elements within the plan for each of these issues. However, mitigation measures, which would eliminate these effects, were developed alongside the progression of the plan, and the mitigation measures were integrated into the plan, providing a robust mechanism to ensure that development would not adversely affect the European sites. This previous HRA work informs the HRA of the emerging Local Plan, which is the subject of this report, in terms of the same sites and issues, as summarised in Table 2.

Table 2: Summary table highlighting issues and European sites for which adverse effects on integrity were identified within HRA work for PLP1. Table adapted from Liley & Tyldesley (2011).

Issue	Relevant policies in PLP 1	European sites					Mitigation / Notes
		Dorset Heaths ¹³	Poole Harbour	St Albans Head to Durlston Head	Isle of Portland to Studland Cliffs	New Forest	
SAC		✓		✓	✓	✓	
SPA		✓	✓			✓	
Ramsar		✓	✓			✓	
Increased recreational pressure and other urban effects	HS, TA	✓	✓	✓	✓	✓	Increased recreational pressure from development across the area with the potential for an adverse effect on heathland, Poole Harbour and coastal sites. Mitigation through access management and SANGS provision.
Water abstraction	HS	✓					Strategic management of water supplies potentially resolves issue in long term.
Water quality	HS	✓	✓				Detail of mitigation measures relating to Poole Harbour needs to be finalised
Fragmentation	ELS, TA	✓					Employment land at Holton Heath and Winfrith has potential to impact nearby heaths. Detailed assessment required of each site to ensure level of development can go ahead.
Air quality	HS, ELS, TA, IAT	✓					Development in Swanage will have particular impacts for traffic (Stoborough Heath and Corfe Common SSSIs).

¹³ By Dorset Heaths we mean the Dorset Heaths SAC, The Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC, the Dorset Heathlands SPA and the Dorset Heathlands Ramsar

HRA to date for the Purbeck Local Plan review

- 3.12 A HRA has been undertaken for each of the previous plan making stages as part of the Local Plan Review. Initially the Issues and Options stage was supported by a HRA report that advised on the key risks from the emerging issues and options for the Purbeck area. At this early stage in plan making, the site allocations were not fully developed, but identified some potential areas for housing delivery. The following conclusions were drawn in relation to issues and options for housing growth.
- 3.13 All large housing sites require further detailed assessment. The site proposed at Sandford has particular constraints and, at this stage in the assessment, is not considered possible to develop without adverse effects on the integrity of the Dorset Heathlands SPA and Dorset Heaths SAC. Of the remaining sites, those around Wareham and Lytchett Minster have particular challenges, mitigation will be difficult to secure, and it may not be possible to rule out adverse effects on the integrity on nearby European sites. At Lytchett Minster the SANG options are not clear at this stage and to some extent the scale of green space provision there and effectiveness will depend on the proposal for a Country Park at Morden.
- 3.14 The Options consultation provided a set of preferred allocations for development, including housing. The housing allocations were seeking to provide enough sites to cover a large shortfall from the adopted PLP1. The HRA screened all preferred housing site allocations as having a likely significant effect. It concluded that for some allocations, adherence to the Dorset Heathlands strategic mitigation approach could potentially be achieved, and that there were options for delivering SANGs of adequate quality and quantity. For other allocations, there were notable concerns due to the constraints posed by the site in terms of SANGs delivery, and in terms of proximity to the heathlands European sites. The most serious concerns raised in the Options HRA related to impacts at North Wareham due to proximity, and some concerns in relation to SANGs delivery at a number of sites, including Lytchett Matravers and Moreton. It should be noted that at Options stage, a housing allocation at Sandford was not proposed in the final consultation because of serious concerns relating to proximity to the European heathland sites and lack of mitigation options.
- 3.15 The revised housing options in the New Homes for Purbeck document set out the revised housing needs, based on the most recent evidence and recently commissioned assessments, as detailed below. It included a number of allocations, and also provided three options for how the objectively assessed growth predictions could be realised within the Purbeck area over the plan

period. Each option provided for the same total number of houses, but the spread of housing across settlements differs between options.

- 3.16 Footprint Ecology holds data on housing numbers per postcode dating back to 2003. From the period 2003-2014 there was around an 8% growth in the number of houses, from 20,535 in 2003 to 22,127 dwellings in 2014; a level of development of around 150 dwelling per annum. The revised housing options proposed that a total of 2,890 new dwellings will be provided over the plan period 2016 to 2033. This is based on a housing need for 170 new homes per annum, which is an increase from the current target of 120 new homes per annum (over the period 2006 to 2027) in the existing PLP1, but a decrease from earlier calculations made at the commencement of the review.

Housing needs evidence base

- 3.17 The former Purbeck District Council commissioned GL Hearn to prepare an updated Objectively Assessed Housing Need for the Purbeck area. This was undertaken using currently available guidance and best practice in objectively assessing housing need, including the NPPF and NPPG, the Housing White Paper of February 2017 and Government announcements on the need to standardise methodologies. The report was finalised just before the Government published the consultation on 'Planning for Homes in the Right Places,' referred to in Section 1 of this report and which includes standard approaches to assessing housing need. With this publication released for consultation, the former Purbeck District Council then commissioned Intelligent Plans and Examinations Ltd to review the recent study by GL Hearn in light of the proposed standardised methodology.
- 3.18 The Intelligent Plans and Examinations (IPE) review concludes that the Council can be confident that the housing need target in the GL Hearn report is broadly correct, and that there is a clear need to boost housing delivery in Purbeck over the next 2 to 3 years. The IPE Review suggests that the Council should consider the early release of sites where there are no overriding infrastructure requirements. This latter point is important for this HRA, as a boost over the next few years could only be taken forward if the necessary European site mitigation measures are provided in time with development.
- 3.19 The revised housing options within the New Homes for Purbeck document set out a summary of the current situation in relation to housing delivery and explained the need for additional new homes for Purbeck. It identified a total housing need of 2,890 homes using the Government's new Objectively Assessed Housing Need methodology, and the requirement to deliver a remaining 1,700 homes after various housing delivery sources already secured (around 1,200) are taken into account, amounting to around 1,200 homes.

- 3.20 The New Homes for Purbeck document set out differing scenarios for delivering the 1,700 homes.

The Submission Publication of the Local Plan

- 3.21 The submission version of the Purbeck Local Plan, was prepared following consultation on the New Homes for Purbeck document, and had regard for the updated East Dorset Strategic Housing Market Assessment 2018 (SHMA). The submission version of the plan stated a need for at least 2,688 new dwellings over the plan period. With a new plan period start date of 2018, and housing needs calculations based on the most up to date guidance and evidence, the local plan no longer took into account the housing permissions already given.
- 3.22 The plan provides a finalised set of site allocations for new growth in the Purbeck area, alongside the strategic and development management policies that provide the framework within which to deliver the new growth. The housing allocations provide for around 1,650 new dwellings (local plan and neighbourhood plan allocations combined, as detailed below).
- 3.23 The New Homes for Purbeck consultation presented three main options for delivering new residential development over the plan period to meet housing need. The consultation outcomes informed the submission version of the plan, with a dispersed pattern of development across Purbeck, with some deletion of green belt land at Lytchett Matravers, Upton and Wareham to meet the preferences expressed in the consultation. As part of the preparation of the local plan, the former Purbeck District Council undertook a green belt review, concluding that exceptional circumstances allow for some green belt deletion to provide development in accessible locations close to transport corridors.
- 3.24 Site allocations at settlements within the submission version of the plan were:
- Moreton Station/Redbridge Pit = 490 dwellings
 - Wool = 470 dwellings
 - Lytchett Matravers = 150 dwellings
 - Upton = 90 dwellings
- 3.25 Additionally, Swanage Local Plan and neighbourhood plans that form part of the Purbeck Local Plan include the following allocations that can be counted towards the overall local plan target for housing delivery:
- Swanage = 150 dwellings
 - Wareham = 207 dwellings
 - Bere Regis = 105 dwellings
- 3.26 Small sites were covered in a specific small sites policy, and in line with the responses to the New Homes for Purbeck consultation supporting a dispersed

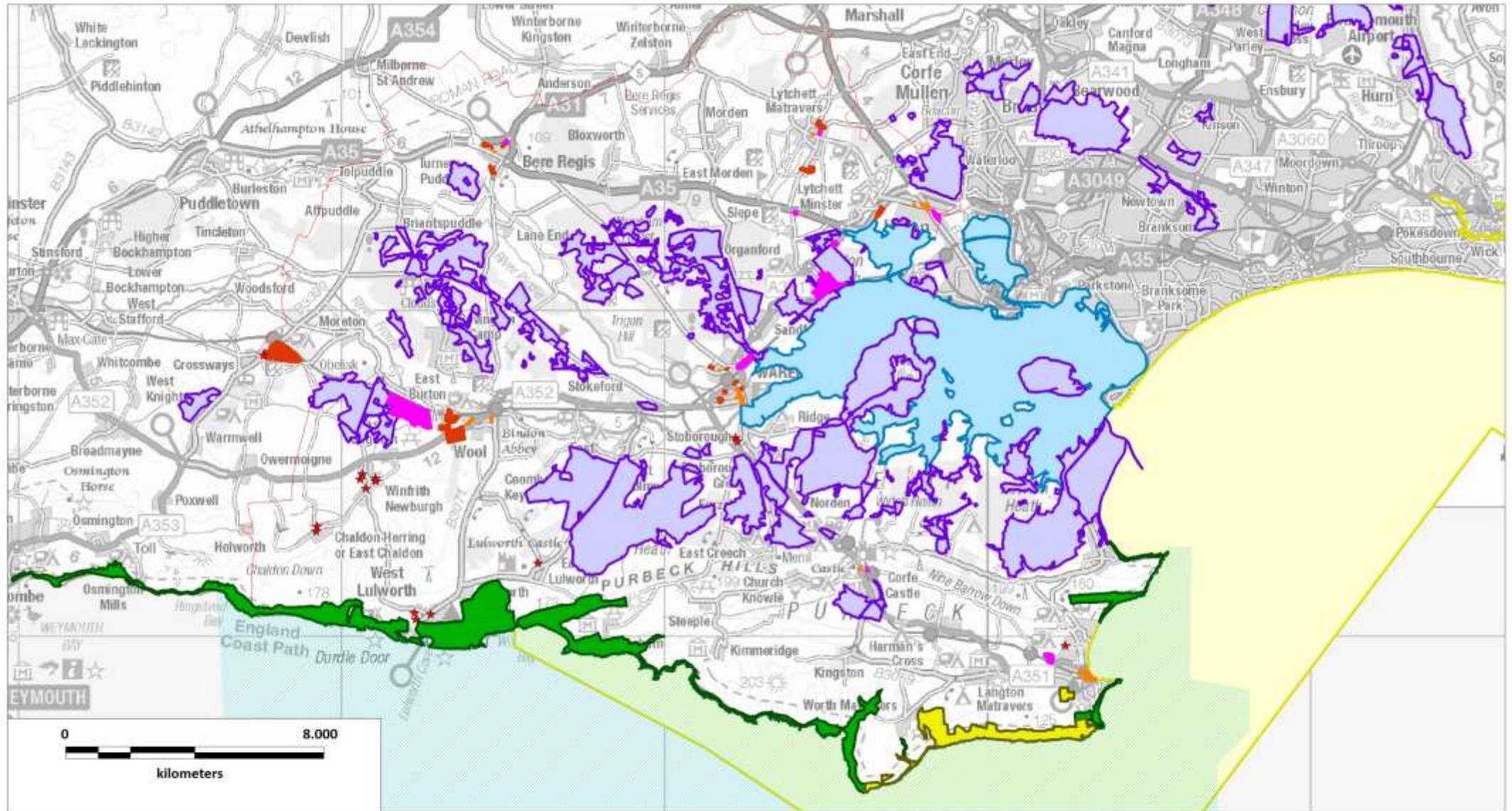
pattern of growth, small housing sites of less than 30 houses and windfall make a notable contribution to the achievement of the housing requirement of at least 2,880 new dwellings.

- 3.27 Employment allocations were set out within policy EE1 and do not introduce any new employment land from PLP1. The allocations set out in EE1 are for the completion of available capacity at existing employment sites. Previous HRA work at PLP1, the emerging Local Plan at Options stage highlighted some considerations for project level HRA.
- 3.28 Retail development is focussed on existing retail centres or specifically in relation to retail provision associated with new housing allocations, primarily at Moreton Pit and Wool. Retail provision is unlikely to generate new impact pathways, but project level HRA may be required where proximity to European sites poses risks.

Main Modifications

- 3.29 The Council has now produced a schedule of Main Modifications, these take into account the discussions at the examination hearing sessions and direction from the Inspector. The Main Modifications indicate an annual need for 180 homes per year, and for the period covered by the Plan (2018-2034) this equates to the need to provide 2,880 homes.
- 3.30 Map 4 illustrates the site allocations for housing, employment and retail growth, alongside the European sites. Maps 5, 6 and 7 show the allocations in more detail.

Map 4: Overview of plan elements in relation to European sites



European sites

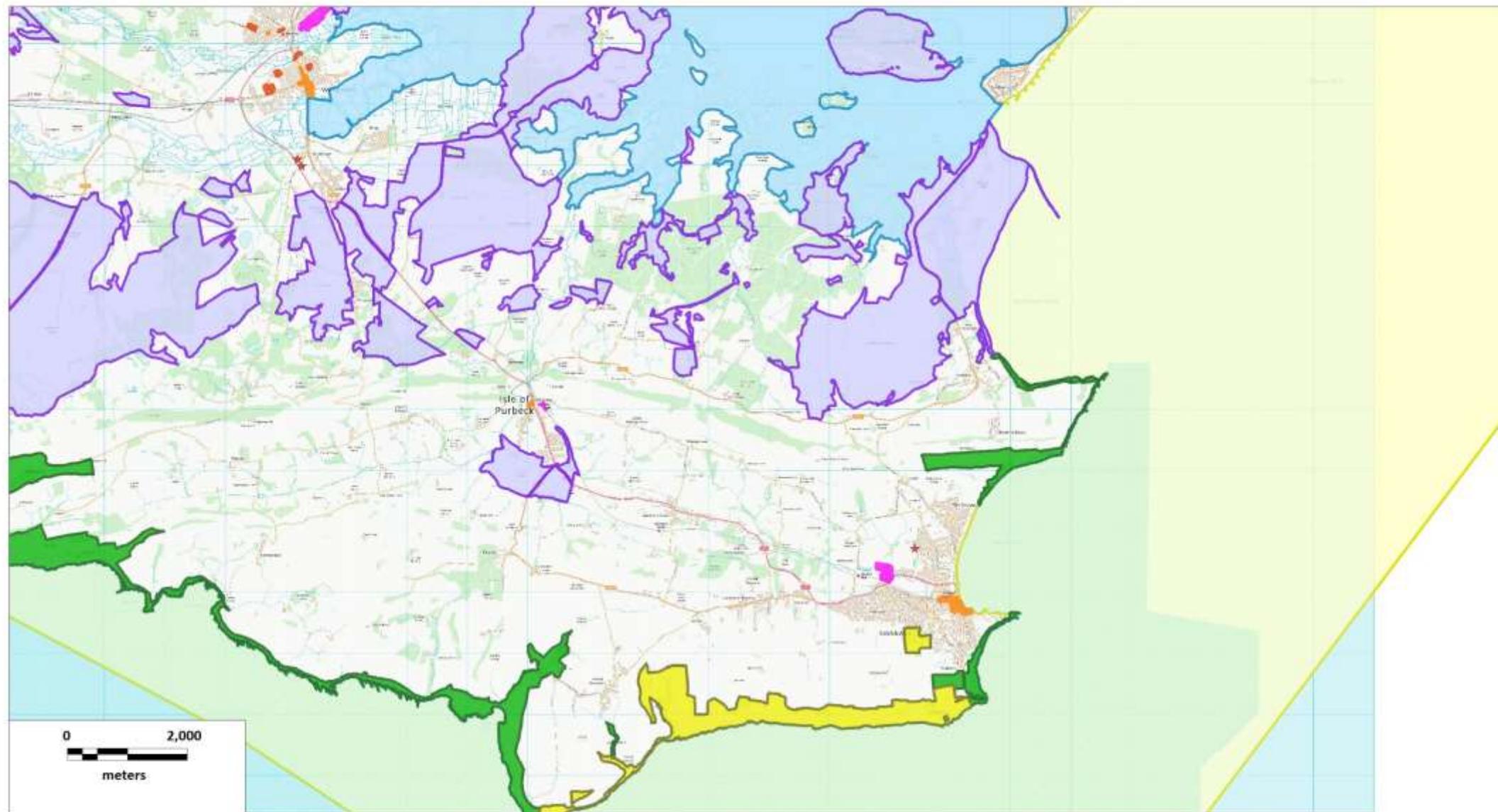
- Dorset Heaths (SAC/SPA)
- Isle of Portland to Studland Cliffs SAC
- Poole Harbour (SPA/Ramsar)
- Solent and Dorset Coast SPA
- St Albans Head to Durlston Head SAC
- Studland to Portland SAC

Local Plan Sites

- Housing (H2)
- Employment
- Retail
- Potentially suitable small housing sites
- Purbeck District

Contains Ordnance Survey data. © Crown copyright and database right 2020.
 Designated site boundaries downloaded from the Natural England website. © Natural England.
 Details of local plan sites provided by Dorset Council.

Map 5: Wareham, Swanage and Corfe Castle plan elements



European sites

- Dorset Heaths (SAC/SPA)
- Isle of Portland to Studland Cliffs SAC
- Poole Harbour (SPA/Ramsar)

- Solent and Dorset Coast SPA
- St Albans Head to Durlston Head SAC
- Studland to Portland SAC

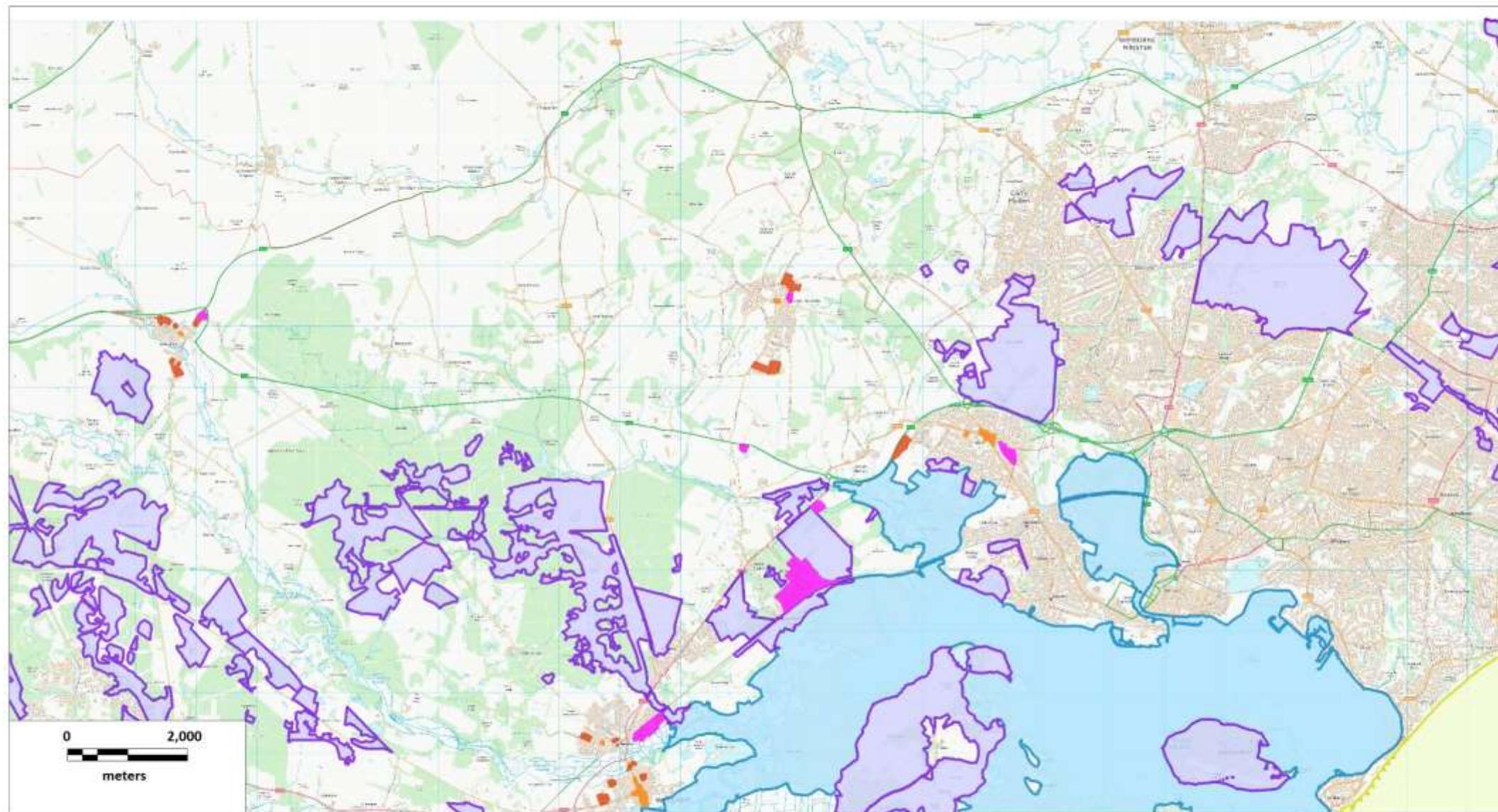
Local Plan Sites

- Housing (H2)
- Employment
- Retail
- Potentially suitable small housing sites

- Purbeck District

Contains Ordnance Survey data. © Crown copyright and database right 2020.
 Designated site boundaries downloaded from the Natural England website. © Natural England.
 Details of local plan sites provided by Dorset Council.

Map 6: Sandford, Bere Regis, Upton and NE Purbeck plan elements



European sites

- Dorset Heaths (SAC/SPA)
- Isle of Portland to Studland Cliffs SAC
- Poole Harbour (SPA/Ramsar)
- Solent and Dorset Coast SPA
- St Albans Head to Durlston Head SAC
- Studland to Portland SAC

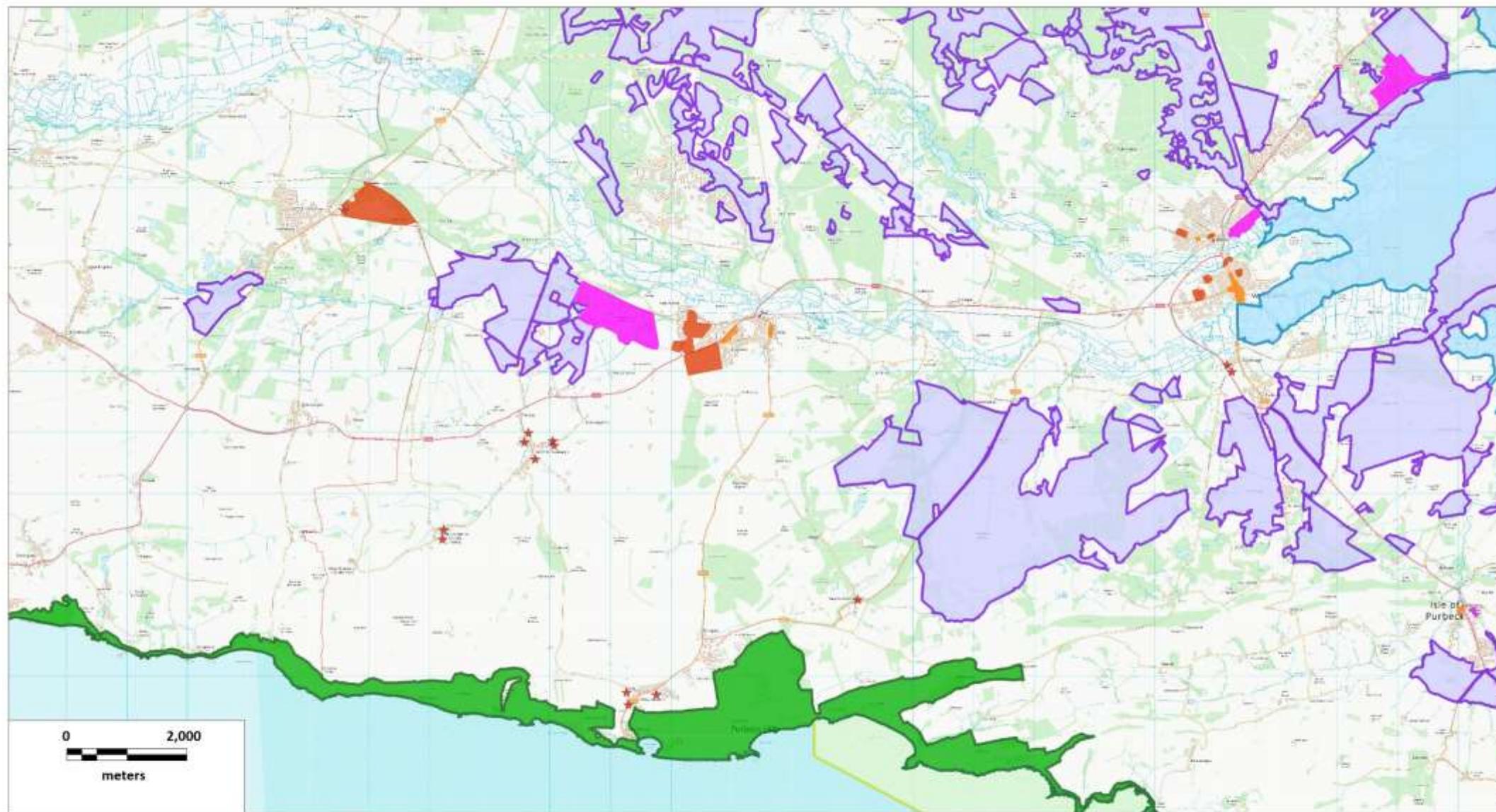
Local Plan Sites

- Housing (H2)
- Employment
- Potentially suitable small housing sites
- Retail

- Purbeck District

Contains Ordnance Survey data. © Crown copyright and database right 2020.
 Designated site boundaries downloaded from the Natural England website. © Natural England.
 Details of local plan sites provided by Dorset Council.

Map 7: Wareham, Wool and SW Purbeck plan elements



European sites

- Dorset Heaths (SAC/SPA)
- Isle of Portland to Studland Cliffs SAC
- Poole Harbour (SPA/Ramsar)
- Solent and Dorset Coast SPA
- St Albans Head to Durlston Head SAC
- Studland to Portland SAC

Local Plan Sites

- Housing (H2)
- Employment
- Retail
- Potentially suitable small housing sites

Purbeck District

Contains Ordnance Survey data. © Crown copyright and database right 2020.
 Designated site boundaries downloaded from the Natural England website. © Natural England.
 Details of local plan sites provided by Dorset Council.

4. Screening the Local Plan for Likely Significant Effects

- 4.1 This section documents the screening stage of HRA (stage 1 of the 4 stage process), where the plan is screened for likely significant effects.
- 4.2 This HRA report for the new Local Plan was first prepared in 2015 for the Issues and Options consultation, in 2016 for the Options consultation, and 2018 for the New Homes for Purbeck consultation. These previous versions of the HRA can be found on the Examination pages for the Purbeck Local Plan review¹⁴.
- 4.3 The screening for likely significant effects of a plan involves checking all aspects of the plan and identifying any areas of potential concern, which are then examined in more detail in the appropriate assessment (stage 2) of HRA. The check for likely significant effects provides a provisional screening of the plan. It is undertaken to enable the plan maker as competent authority to do two things; narrow down the elements of the plan that may pose a risk to European sites to highlight those options that are likely to be harmful and, where an option poses a risk but is a desired element of the plan, the screening exercise identifies where further assessment is necessary in order to determine the nature and magnitude of potential impacts on European sites and what could be done to eliminate those risks. Further assessment and evidence gathering after early screening may include, for example, the commissioning of additional survey work, modelling, researching scientific literature or setting out justifications in accordance with expert opinion.

What constitutes a likely significant effect?

- 4.4 At the screening stage of HRA, there is the opportunity to identify changes to the plan that could be made to avoid risks to European sites, and this is particularly relevant at this stage in the plan making as issues can be identified up front and resolved with later iterations of the plan. It should also be noted that the preliminary work identifying impact pathways and issues has already been running parallel to the plan making and has informed the choice of location and options included in the plan at this stage.
- 4.5 Where the screening identifies risks that cannot be avoided with simple clarifications, corrections or instructions for project level HRA, a more detailed assessment is undertaken to gather more information about the likely

¹⁴ See [Council website for past consultations](#)

significant effects and give the necessary scrutiny to potential mitigation measures. This is the appropriate assessment stage of HRA.

- 4.6 A likely significant effect could be concluded on the basis of clear evidence of risk to European site interest, or there could be a scientific and plausible justification for concluding that a risk is present, even in the absence of direct evidence. The latter is a precautionary approach, which is one of the foundations of the high-level of protection pursued by EU policy on the environment, in accordance with the EU Treaty¹⁵. The precautionary principle should be applied at all stages in the HRA process and follows the principles established in case law relating to the use of such a principle in applying the European Directives and domestic Habitats Regulations. In particular, the European Court in the ‘Waddenzee’ case¹⁶ refers to “*no reasonable scientific doubt*” and in the ‘Sweetman’ case¹⁷ the Advocate General identified that a positive conclusion on screening for likely significant effects relates to where there “*is a possibility of there being a significant effect*”.
- 4.7 The screening in this report looks at policies and options prior to any avoidance, reduction/mitigation measures in line with People Over Wind¹⁸. Mitigation potential can only be considered at Appropriate Assessment stage. People Over Wind clarified the need to carefully explain actions taken at each HRA stage, particularly at the screening for likely significant effects stage. The Judgment highlights the need for clear distinction between the stages of HRA, and good practice in recognising the function of each. The screening for likely significant effects stage should function as a screening or checking stage (regardless of avoidance, reduction/mitigation measures), to determine whether further assessment is required. Assessing the nature and extent of potential impacts on European site interest features, and the robustness of mitigation options, should be done at the appropriate assessment stage.
- 4.8 The screening of this version of the plan is based on the Main Modifications. We have drawn upon the previous HRA reports and produced a comprehensive screening table, screening policy by policy of the complete Plan, including the Main Modifications. This will ensure that the Local Plan being adopted by the Council has been checked for any possibility of significant effects on European sites and provides an accurate and up to date record of assessment for the plan.

¹⁵ Article 191 of the Treaty on the Functioning of the EU. Previously Article 174 of the Treaty of the EC.

¹⁶ Waddenzee: European Court of Justice case C - 127/02

¹⁷ Sweetman: European Court of Justice case C - 258/11

¹⁸ People Over Wind: European Court Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta 12 April 2018

Identifying impact pathways

- 4.9 Drawing on our list of all European sites within 20km of the former Purbeck District Council boundary, previous HRA work (e.g. at PLP1) and the locations that are the focus for the Purbeck Local Plan, we can identify the following potential impact pathways (i.e. credible risks) to European sites:
- Recreation and urban effects on the Dorset Heaths (i.e. issues addressed by the Dorset Heathlands Planning Framework and covering recreation, increased fire risk, fly-tipping, vandalism etc.)
 - Fragmentation/mobile species (whereby development results in a loss of connectivity between sites or a loss of habitat that is functionally-linked to the European sites)
 - Recreation at non-heathland sites (i.e. increased recreation use, with associated issues such as increased fire risk, contamination, disturbance etc.)
 - Water quality (i.e. deterioration in water quality)
 - Air Quality (increased nitrogen deposition and other pollutants, particularly associated with increased traffic).
- 4.10 These pathways are simple terms, each encompassing a range of issues. It should be noted that we have included recreation alongside urban effects for the Dorset Heaths, as the two issues are hard to separate. While urban effects might encompass fragmentation and loss of functionally-linked land, we have treated these as separate pathways. This is because some species, such as Nightjar, will roam very widely, often many kilometres from heathland patches.
- 4.11 We can eliminate water abstraction as an impact pathway. This is because Wessex Water's Water Resources Management Plan (which sets out how the water company aims to balance supply and demand for water over the following 25 years), finalised in 2019¹⁹, forecasts that there company has access to enough water to meet the needs of customers for at least the next 25 years without the need to develop new source of water. The WRMP was subject to an HRA screening which identified no likely significant effects on European sites, either alone or in-combination, from anticipated changes in use (based on current information and designations at the time). In line with relevant guidance²⁰, the conclusions from the HRA of the WRMP can be 'adopted' for the purpose of this assessment and omitted from further scrutiny.

Identifying European sites potentially at risk

¹⁹ See relevant page on [Wessex Water website](#)

²⁰ See section C.12 of the Habitats Regulations Handbook and government guidance (Defra, 2012a)

- 4.12 European sites within a 20km radius of the former Purbeck District Council boundary are listed in previous sections and shown in Maps 1-3. Reviewing this list, we can focus on those that are relevant to the screening (see Table 3). Many of the sites listed are well outside Purbeck and there is no plausible mechanism by which the Plan could have an impact. These are shaded grey in the table.
- 4.13 We have eliminated the New Forest SAC/SPA/Ramsar from further consideration, which reflects a different approach to that in the HRA for PLP 1 (Liley & Tyldesley, 2011). The HRA for the PLP1 suggested Purbeck was potentially just within a zone where new development might add to the recreational pressure within the New Forest SPA, SAC and Ramsar site. The New Forest National Park is a nationally promoted visitor attraction that draws day visitors and holiday makers from a wide radius. Visitor levels to the National Park are already high and additional development, was believed likely to result in increased visitor pressure. Given the draw of the National Park, visitors can travel from a wide radius.
- 4.14 Since PLP1, local authorities around the New Forest have established mitigation approaches and these indicate that Purbeck is well beyond a distance where issues might arise, for example Test Valley²¹ assume a zone of influence of 13.6km from the New Forest SAC/SPA/Ramsar boundary. Furthermore, over 2018/19 there was extensive visitor survey work done across the New Forest (funded by central government) to understand the implications of surrounding housing growth. While only interim results have been published to date²², we understand there to be no new evidence to suggest regular or high levels of recreation use from beyond 15km. The distance from the eastern edge of Purbeck to the western edge of the New Forest SPA/SAC/Ramsar is 17.8km and most of Purbeck (such as Wareham, Wool etc.) is beyond 25km. As such the New Forest can be eliminated from further consideration.
- 4.15 Also, in departure to the PLP1 HRA, we have screened in the River Avon SAC. This is following a consultation response to the HRA report that accompanied the submission version of the Local Plan that raised the issue of Salmon moving between the River Avon SAC and other chalk rivers, such as the Frome and Piddle in Purbeck. This is an issue involving a mobile species and therefore falls under the fragmentation/mobile species impact pathway.

²¹ See [relevant page on Test Valley Borough Council website](#)

²² e.g. see the 2019 Interim [New Forest Mitigation report to support the Eastleigh Borough Local Plan](#)

Table 3: Summary of European sites within 20km, potentially relevant impact pathways for those sites and those that can be eliminated from further consideration (grey shading). Those sites with no figure in the distance column fall within or partly within the former Purbeck District Council boundary.

European site	Distance (km) from Plan boundary	Recreation & urban effects	Fragmentation/mobile species	Recreation (non-heathland sites)	Water quality	Air quality	Reasons for elimination from rest of plan
SACs							
Cerne & Sydling Downs	12.8						Chalk grassland site, well outside Purbeck and too far for issues to be relevant.
Chesil & The Fleet	11.2						Coastal site, well outside Purbeck and too far for issues to be relevant.
Crookhill Brick Pit	12.6						A disused brick pit near Weymouth that supports Great-crested Newts, well outside District boundary and too far for issues to be relevant.
Dorset Heaths		✓	✓			✓	
Dorset Heaths (Purbeck & Wareham) & Studland Dunes		✓	✓			✓	
Fontmell & Melbury Downs	17.8						Chalk grassland site, well outside Purbeck and too far for issues to be relevant.
Holnest	19.3						Around 20 ponds well to the north of Purbeck, towards Sherborne. Designated for Great-crested Newt. Too far for issues to be relevant
Isle of Portland to Studland Cliffs				✓			
River Avon	12.9		✓				River is well to the east of Purbeck and too far for most issues to be relevant. However there is evidence of some Salmon movements between the River Avon and rivers in Purbeck.
Rooksmoor	15.1						Neutral grassland in Blackmore Vale, well to the north of Purbeck. Too far for issues to be relevant
St Albans Head to Durlston Head				✓			

H R A of Purbeck Local Plan at Main Modifications

European site	Distance (km) from Plan boundary	Recreation & urban effects	Fragmentation/mobile species	Recreation (non-heathland sites)	Water quality	Air quality	Reasons for elimination from rest of plan
Studland to Portland							A marine site, important for reef habitats. No plausible mechanism by which local plan could impact.
The New Forest	17.8						Very large SAC encompassing wide range of habitats and interest, well beyond Purbeck and within the New Forest National Park. See also accompanying text above this table.
<u>SPAs</u>							
Avon Valley	12.9						SPA comprised primarily of wet grassland which qualifies for the wintering waterbird interest. Well away from Purbeck (other side of Poole Bournemouth conurbation) and much of area private. No plausible mechanism by which local plan could impact.
Chesil Beach & the Fleet	11.4						Coastal site, well outside Purbeck and too far for issues to be relevant.
Dorset Heathlands		✓	✓			✓	
New Forest	18.9						Very large SPA encompassing wide range of habitats and interest, well beyond Purbeck and within the New Forest National Park. See also accompanying text above this table
Poole Harbour				✓	✓	✓	
Solent and Dorset Coast							Relatively new SPA designated for terns and encompassing waters used by terns for foraging. No plausible mechanism by which local plan could impact.
<u>Ramsar</u>							

H R A of Purbeck Local Plan at Main Modifications

European site	Distance (km) from Plan boundary	Recreation & urban effects	Fragmentation/mobile species	Recreation (non-heathland sites)	Water quality	Air quality	Reasons for elimination from rest of plan
Avon Valley	12.9						Well away from Purbeck (other side of Poole Bournemouth conurbation) and much of area private. No plausible mechanism by which local plan could impact.
Chesil Beach & the Fleet	11.4						Coastal site, well outside Purbeck and too far for issues to be relevant.
Dorset Heathlands		✓	✓			✓	
New Forest	18.9						Very large SPA encompassing wide range of habitats and interest, well beyond Purbeck and within the New Forest National Park. See also accompanying text above this table
Poole Harbour				✓	✓	✓	

Screening conclusions

- 4.16 The screening for likely significant effects within Table 4 below provides the screening assessment for the Purbeck Local Plan at Main Modifications. The screening covers the whole plan, including modifications. Where risks are highlighted and there is a possibility of significant effects on European sites, further and more detailed assessment is required. Inevitably there will be precaution in screening elements of the plan, as the purpose of screening for likely significant effects is to identify where there is either no possibility of an effect, or where there are uncertainties.
- 4.17 The screening of the Main Modifications version for likely significant effects has identified a number of risks in terms of additional recreation pressure, urban effects, fragmentation/mobile species, water quality and air quality for various European sites.
- 4.18 Concerns are raised in relation to all proposed housing allocations, as a precautionary measure, to enable a check of existing mitigation approaches to ensure that they remain appropriate for the level and location of housing growth proposed. This is assessed in further detail within the appropriate assessment section of this HRA report.

Table 4: Combined screening the submission version of the Purbeck Local Plan 2018 and main modifications (October 2020) for likely significant effects. The modification column cross-references to the relevant main modifications, which have been included within the screening.

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
Chapter 1 - Introduction	1-2	Background context	No LSE – informative only and reference made to wildlife assets and current protection measures	N/A	N/A
Chapter 2 - Vision	3	High level aspirations for the local plan period, covering economic, environmental and social needs for the Purbeck area	No LSE – wildlife assets included adequately within the vision	N/A	N/A
Objectives	4	Environment, housing, economy and infrastructure	No LSE – protection and enhancement of wildlife assets included within the objectives	N/A	N/A
V1 – Spatial strategy for sustainable communities	5	Allocations to deliver the required homes for the area	LSE – quantum (around 1552 homes at named locations) and distribution of housing delivery presents a number of potential impact pathways	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); fragmentation/mobile species (Dorset Heathlands SPA/Ramsar, River Avon SAC); recreation at non-heathland	Appropriate assessment needs to consider success of mitigation approaches to date and check that strategic mitigation continues to be fit for purpose in relation to overall quantum of housing.

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
				sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC, Poole Harbour SPA/Ramsar); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	
V2 – Green belt	6-7	Proposed amendments to the green belt boundary to accommodate the allocations at Upton and Lytchett Matravers, and the holiday park at Morden	No LSE – the policy relates to green belt status, which itself does not protect or place risk on European sites. The relevant site allocations will be assessed as part of the appropriate assessment	N/A	N/A
Chapter 3 – Environment - Introduction	8	Introductory context for environment chapter	No LSE – informative only and comprehensive description of wildlife assets and current protection measures	N/A	N/A
E1 - Landscape	9	Measures for the protection and enhancement of the	No LSE – a protective policy for the natural environment	N/A	N/A

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
		landscape assets of the Purbeck area			
E2 – Historic environment	10-11	Measures for the protection and enhancement of the historic assets of the Purbeck area	No LSE – a protective policy for the historic environment	N/A	N/A
E3 – Renewable energy	12	High level support for renewable energy proposals	No LSE – policy is high level and not development specific.	Project level risks, depending on the nature and location of proposals, may need to be supported by project level HRA.	Modifications have removed previous text on protected sites.
E4 – Assessing flood risk	N/A	Requirements for appropriate levels of flood risk assessment for development	No LSE – policy relates to assessment requirements, and does not promote development	N/A	N/A
E5 – Sustainable drainage systems	13	Requirements for SuDs within development	No LSE – Policy relates to SuDs provision, which is positive for the natural environment, and does not promote development	N/A	N/A
E6 – Coastal change management areas		Restrictions on development along parts of the coast that are most likely	No LSE – a protective policy to prevent development in areas at risk of erosion or inundation	N/A	N/A

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
		to be affected by coastal change			
E7 – Conservation of protected sites	14-19	Restrictive policy preventing development that cannot demonstrate no adverse effects on national, European and international wildlife sites	Excluded from the formal screening following People vs Wind as policy avoids/reduces harm to European sites. A strong protective policy and comprehensive supporting text	N/A	Modifications include reference to additional European sites, strengthening wording.
E8 – Dorset Heathlands	20	Restrictive policy implementing the established avoidance and mitigation measures for the Dorset Heaths	Excluded from the formal screening following People vs Wind as policy avoids/reduces harm to European site.	N/A	Appropriate assessment needs to consider success of mitigation approaches to date and check that strategic mitigation continues to be fit for purpose.
E9 – Poole Harbour	21	Restrictive policy implementing the established avoidance and mitigation measures for Poole Harbour	Excluded from the formal screening following People vs Wind as policy avoids/reduces harm to European site.	N/A	Appropriate assessment needs to consider success of mitigation approaches to date and check that strategic mitigation continues to be fit for purpose.
E10 – Biodiversity and geodiversity	22-23	Approach to protecting and enhancing biodiversity and	No LSE.	N/A	Policy contains reference to Nightjar, Woodlark and functionally-linked land,

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
		geodiversity assets outside designated sites			ensuring necessary checks in place.
E11 – Development next to sewage treatment works and pumping stations		Restrictive policy to prevent issues of development in close proximity	No LSE – policy is restrictive, and does not promote development	N/A	N/A
E12 – Design	24	Qualitative criteria for high quality design of development in the Purbeck area	No LSE – includes promotion of biodiversity enhancement within development design	N/A	N/A
Chapter 4 – Housing - Introduction	25	Introductory context for housing chapter	No LSE – informative only and includes reference to constraints in relation to European sites	N/A	N/A
H1 – Local housing requirement	26	Overall quantum of housing growth stated as at least 2,880 new homes over the plan period of 2018 to 2034	LSE – quantum and distribution of housing delivery presents a number of potential impact pathways	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); fragmentation/mobile species (Dorset Heathlands SPA/Ramsar); recreation at non-heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston	Modification increases housing requirement from 2,688 to 2,880. Appropriate assessment needs to consider success of mitigation approaches to date check that strategic mitigation continues to be fit for purpose - to ensure that the quantum of housing proposed can be accommodated within the

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
				Head SAC, Poole Harbour SPA/Ramsar); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	current strategic mitigation approaches
H2 – The housing land supply	27-30	Housing allocations and housing numbers for each site (excluding Swanage local plan and neighbourhood plans)	LSE – quantum and distribution of housing delivery presents a number of potential impact pathways	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); fragmentation/mobile species (Dorset Heathlands SPA/Ramsar); recreation at non-heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC, Poole Harbour SPA/Ramsar); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	Appropriate assessment needs to consider success of mitigation approaches to date and check that strategic mitigation continues to be fit for purpose.
H3 – New housing development requirements	31-32	Criteria for new housing development to adhere to in terms of key requirements	No LSE. Policy sets out requirements for development. Components relating to European site	N/A	Modification removes reference to SANGs to avoid duplication. Policy states need for mitigation for recreation at selected

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
		for affordable housing, landscaping and sustainability. Includes requirements for European site mitigation.	mitigation excluded from the formal screening following People vs Wind.		sites and for need for mitigation in relation to nitrogen and Poole Harbour.
H4 – Moreton Station/Redbridge Pit (housing allocation, plus community facilities)	33-35	Housing allocation for around 490 new homes, 65 extra care units plus community facilities and supporting infrastructure	LSE - Potential risks due to proximity to European sites.	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); fragmentation/mobile species (Dorset Heathlands SPA/Ramsar). LSE in-combination for the following pathways: recreation at non-heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	Appropriate assessment needs to consider success of mitigation approaches to date and check that mitigation is fit for purpose.

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
H5 – Wool (housing allocation, plus community facilities)	36-38	Housing allocation for around 470 homes and 65 extra care units, plus community facilities and community infrastructure	LSE - Potential risks due to proximity to European sites.	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); fragmentation (Dorset Heathlands SPA/Ramsar). LSE in-combination for the following pathways: recreation at non-heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	Appropriate assessment needs to consider success of mitigation approaches to date and check that mitigation is fit for purpose.
H6 – Lytchett Matravers (housing allocation, plus community facilities)	39-40	Housing allocations for around 150 houses	LSE - Potential risks due to proximity to European sites.	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); recreation at non-heathland sites (Poole Harbour SPA/Ramsar). LSE in-combination for the following pathways: recreation at non-	Appropriate assessment needs to consider success of mitigation approaches to date and check that mitigation is fit for purpose.

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
				heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	
H7 – Upton (housing allocation, plus community facilities)	41	Housing allocation for around 90 houses, plus community facilities and infrastructure	LSE - Potential risks due to proximity to European sites.	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); recreation at non-heathland sites (Poole Harbour SPA/Ramsar). LSE in-combination for the following pathways: recreation at non-heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC; Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	Modification removes specific requirement for nitrogen as covered by H3 and adds SANG requirement as set out in other allocated sites. Appropriate assessment needs to consider success of mitigation approaches to date and check that mitigation is fit for purpose.
H8 – Small sites next to existing settlements	42-43	Criteria to enable small sites of 30 houses or less to be	LSE - Potential risks due to potential	Potential for impacts to European sites in the absence of mitigation: LSE in-	Policy sets no quantum of development and is strategic, but does set

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
		approved next to existing settlements, to contribute towards the desired spread of development across the area	proximity to European sites.	combination for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); recreation at non-heathland sites (Poole Harbour SPA/Ramsar, Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	maximas for types of broad location. Appendix 2 identifies sites that already have planning permission, those allocated for developing in Neighbourhood Plans or sites which are potentially suitable. These sites have capacity to deliver around 14% of Purbeck's housing requirement. Appropriate assessment needs to consider small sites and how mitigation will be achieved.
H9 – Housing mix	44-45	Qualitative criteria for securing the right types of homes for the area's needs	No LSE – promotes housing types not a quantum or location for development. All housing proposals will need to accord with the strategic approaches for Dorset Heathlands and Poole Harbour	N/A	N/A
H10 – Part M of the Building Regulations	46	Qualitative criteria for securing sustainable homes for the area's needs	No LSE – promotes sustainable building requirements, not a quantum or location	N/A	N/A

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
			for development. All housing proposals will need to accord with the strategic approaches for Dorset Heathlands and Poole Harbour		
H11 – Affordable housing	47	Qualitative criteria for securing affordable homes for the area’s needs	No LSE – promotes the required affordable housing proportions, not a quantum or location for development. All housing proposals will need to accord with the strategic approaches for Dorset Heathlands and Poole Harbour	N/A	N/A
H12 – Rural exceptions sites	48-52	Promoting affordable housing proposals in suitable rural locations with criteria to be met.	No LSE (in the absence of mitigation) – criteria based, not promoting a quantum or location for development.	N/A	Policy includes specific measures to resolve European site impacts. These excluded as part of screening. Policy is not specifically assessed at Stage 2 as not stating a quantum of development or specific locations. Overall quantum of growth addressed within

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
					appropriate assessment however.
H13 – Rural workers homes in the countryside	53-54	Criteria for allowing rural workers dwellings in proximity to employment	No LSE (in the absence of mitigation) – criteria based, not promoting a quantum or location for development.	N/A	Policy includes specific measures to resolve European site impacts. These excluded as part of screening. Policy is not specifically assessed at Stage 2 as not stating a quantum of development or specific locations. Overall quantum of growth addressed within appropriate assessment however.
H14 – Second homes	55-57	Requirement for primary homes only within the AONB	No LSE (in the absence of mitigation) - criteria based, not promoting a quantum or location for development.	N/A	Policy includes specific measures to resolve European site impacts. These excluded as part of screening. Policy is not specifically assessed at Stage 2 as not stating a quantum of development or specific locations. Overall quantum of growth addressed within appropriate assessment however.

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
H15 – Gypsy, traveller and travelling show people	58-60	Criteria for allowing sites to accommodate gypsies, travellers and travelling show people	No LSE (in the absence of mitigation)– criteria based, not promoting a quantum or location for development.	N/A	Modification indicates that project level HRA may be necessary. This excluded as part of screening. Policy is not specifically assessed at Stage 2 as not stating a quantum of development or specific locations. Overall quantum of growth addressed within appropriate assessment however.
Chapter 5 – Economy EE1 – Employment land supply	61	Provision for 47ha of employment land, predominantly at Dorset Innovation Park. All employment sites are currently allocated, and policy allows for use of available capacity at these sites.	LSE - Potential risks due to potential proximity to European sites.	Potential for impacts to European sites in the absence of mitigation: LSE in-combination for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); fragmentation/mobile species (Dorset Heathlands SPA/Ramsar); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	Appropriate assessment section of this report to revisit previous recommendations for project level HRA considerations.
EE2 – Planning for employment	62-63	Criteria for allowing new employment development and	No LSE (in the absence of mitigation)–	Close proximity to European sites or particular uses generating impact pathways	No further action at the plan level, but awareness necessary of project level

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
		conversions for employment use	Qualitative, criteria based policy that does not promote a quantum or location for development.	may give rise to the need for project level HRA	HRA requirements which are highlighted in modification.
EE3 – Vibrant town and local centres	64-65	Town centre focussed requirements for retail development	No LSE(in the absence of mitigation) – Qualitative, criteria based policy that is town centre focussed and impact pathways therefore unlikely	Close proximity to European sites or particular uses generating impact pathways may give rise to the need for project level HRA	No further action at the plan level, but awareness necessary necessary of project level HRA requirements which are highlighted in modification.
EE4 – Supporting vibrant and attractive tourism	66	Criteria relating to suitable tourism development, promoting continued sustainable tourism economy within Purbeck	No LSE (in the absence of mitigation)– Qualitative, criteria based policy that does not promote a quantum or location for development.	Close proximity to European sites or particular impact pathways may give rise to the need for project level HRA.	Modification indicates that project level HRA may be necessary. This excluded as part of screening. Policy is not specifically assessed at Stage 2 as not stating a quantum of development or specific locations.
Chapter 6 – Infrastructure 11 – Developer contributions to deliver Purbeck’s infrastructure	67-69	Requirements for collecting developer contributions, setting out the use of S106 and/or CIL	No LSE – Policy and supporting text adequately provides for the use of developer contributions, either S106 or CIL, to contribute to the strategic mitigation approaches for	N/A	Modification clarifies how mitigation will be funded and when developments have to provide site-specific mitigation–mitigation related to other policies considered separately.

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
			Dorset Heathlands and Poole Harbour		
I2 – Improving accessibility and transport	70-71	Qualitative policy for meeting transport infrastructure needs. General requirements, not specifying any identified improvements	No LSE – Qualitative, criteria based policy that does not promote a quantum or location for development.	Close proximity to European sites or particular uses generating impact pathways may give rise to the need for project level HRA.	No further action at the plan level, but awareness of project level HRA requirements.
I3 – Green infrastructure, trees and hedgerows	72-73	Policy requiring enhancement of green infrastructure as an integral part of new development	No LSE – Environmentally positive policy that will support the natural environment of the area. Supporting text refers to the preparation of a GI strategy in 2019 that will include reference to the strategic approaches for European sites.	N/A	When being prepared, the GI strategy will need to be checked to ensure Habitats Regulations compliance, and should be supported by a HRA (proportionate to requirements).
I4 – Recreation, sport and open space	74-75	Requirements for provision of formal open space and sports fields	No LSE – unlikely to lead to any potential impact pathways, unless in very close proximity	Close proximity to European sites may give rise to the need for project level HRA	No further action at the plan level, but awareness of project level HRA requirements

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
15 – Morden Park SANG and holiday park	76-77	Holiday park and strategic SANG	LSE – holiday accommodation in close proximity to designated sites	Potential for impacts to European sites in the absence of mitigation: LSE alone for the following pathways: recreation and urban effects on the Dorset Heaths (Dorset Heaths SACs/SPA/Ramsar); recreation at non-heathland sites (Poole Harbour SPA/Ramsar); LSE in combination for the following pathways: recreation at non-heathland sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC); Water quality (Poole Harbour SPA/Ramsar); Air quality (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).	Holiday park in area of nature conservation importance, adjacent to European sites.
16 – Wareham integrated health and social care	78	Provision of an integrated health and social care hub on Worgret Road, Wareham	No LSE (in the absence of mitigation) – unlikely to lead to any potential impact pathways	N/A	Policy wording refers to need for HRA at project level. However clear pathway whereby conservation objectives for European sites could be undermined.
17 – Community facilities and services	79-81	Provision of new and safeguarding existing community facilities	No LSE – settlement focussed, unlikely to lead to any potential impact pathways	N/A	N/A

H R A of Purbeck Local Plan at Main Modifications

Plan section or policy	Modifications	Description	LSE screening	Potential risks	Comments
Chapter 7 – implementation, delivery and monitoring IM1 – Tools for delivery – the Purbeck Local Plan implementation strategy	82	Commitment to the monitoring of policy implementation and steps for taking action if monitoring highlights implementation issues	No LSE – the policy will be supportive and informative for the strategic mitigation approaches for European sites and their review	N/A	N/A
Purbeck Local Plan monitoring framework	82	The key monitoring elements for the Local plan	No LSE – Provides for monitoring of designated sites and clear requirements for monitoring the strategic mitigation approaches for European sites	N/A	N/A
Glossary, insert definitions	83	Informative only	No LSE	N/A	N/A
Appendix 1: Other documents	84	Informative only	No LSE	N/A	N/A
Appendix 2: Small and medium sized sites	85	List of small and medium sites	LSE, but simply additional detail relating to H2 and H8 and therefore covered by those policies.	See Policy H2 and H8	See Policy H2 and H8

5. Appropriate assessment: Recreation and urban effects on the Dorset Heaths

Relevant policies from LSE screening

5.1 Screening identified likely significant effects for the following policies alone:

- V1 – Spatial strategy for sustainable communities (Dorset Heaths SACs/SPA/Ramsar);
- H1 – Local housing requirement (Dorset Heaths SACs/SPA/Ramsar);
- H2 – The housing land supply (Dorset Heaths SACs/SPA/Ramsar);
- H4 – Moreton Station/Redbridge Pit (Dorset Heaths SACs/SPA/Ramsar);
- H5 – Wool (Dorset Heaths SACs/SPA/Ramsar);
- H6 – Lytchett Matravers (Dorset Heaths SACs/SPA/Ramsar);
- H7 – Upton (Dorset Heaths SACs/SPA/Ramsar);
- I5 – Morden Park SANG and holiday park (Dorset Heaths SACs/SPA/Ramsar).

5.2 Screening identified likely significant effects for the following policies in-combination with other elements of plan and other plans/projects:

- H8 – Small sites next to existing settlements (Dorset Heaths SACs/SPA/Ramsar);
- EE1 – Employment land supply (Dorset Heaths SACs/SPA/Ramsar).

Introduction

5.3 Urban effects relate to issues where development is close to the European site boundary and is an umbrella term relating to impacts such as light, noise, cat predation, fly tipping, spread of invasive species (e.g. from gardens and garden waste) and vandalism. Most heathland sites have a legal right of public access and the heaths draw visitors for a range of activities. Recreation use is associated with impacts such as disturbance, trampling and contamination. Heaths are also vulnerable to fires, which can be triggered by recreation use (barbeques etc.), as well as arson and from adjacent land (e.g. gardens).

5.4 The general (global) impacts of development on wildlife sites are well documented (e.g. McDonald, Kareiva & Forman 2008; McDonald et al. 2009). The impacts of urban development on heathlands in the UK have been the subject of a range of studies and have been reviewed by Haskins (2000) and Underhill-Day (2005). Studies using data from multiple heathland sites have shown reduced densities of nightjars (Liley & Clarke 2003; Liley et al. 2006) and woodlarks (Mallord 2005) on sites with higher levels of surrounding urban development, in other words, heaths with more houses around

them support fewer birds. Studies of fire incidence have shown that heathland sites with high levels of housing within 500m of the site boundary have a higher fire incidence (Kirby & Tantram, 1999). These studies provide strong evidence that surrounding urban development has a negative effect on the European site interest.

- 5.5 Where housing is directly adjacent to sites, access can occur directly from gardens and informal access points. Use will spill over from adjacent gardens and adjacent green space next to urban areas is often subject to a range of activities that are not necessarily compatible with nature conservation. Fly-tipping and dumping of garden waste can be more common. As such, managing and looking after such sites can be more challenging.
- 5.6 For both nightjar and woodlark studies have shown recreation use affects the distribution of birds within sites, such that busy areas are avoided (Liley et al. 2006; Mallord et al. 2007; Lowe, Rogers & Durrant 2014). For Dartford warblers, breeding productivity is lower in territories where access levels are high (Murison et al. 2007), this is because disturbed birds nest later in the season. For nightjars there is also evidence of breeding success being lower on busier sites and busier parts of sites (Murison 2002). For woodlarks at least, there are clear population-level impacts as a result of the presence of people on the heaths (Mallord et al. 2007).
- 5.7 Alongside the disturbance of Annex I birds, the use of the heaths for recreation brings other issues (see Underhill-Day 2005 for review). Dog fouling results in nutrient enrichment, with dog faeces being very nutrient rich. Heathland soils are nutrient poor and enrichment results in a switch in vegetation to grassy swards. This can be exacerbated by trampling, which has a lesser effect on species such as grasses (which grow from the base rather than the tip). The impacts of dog fouling can often be seen in the form of grassy wedges/edges of paths on many heaths in Purbeck.
- 5.8 The change in vegetation leads to a loss of habitat for many invertebrates and a loss of habitat for Annex I birds. Trampling can lead to vegetation wear, soil compaction and erosion. The presence of people and dogs can make grazing (necessary for management of sites) difficult²³, and recreational use can lead to people opposing conservation management, for example removal of tree or scrub cover (the heaths are open habitats which require regular management to maintain).
- 5.9 A further issue is increased predation, associated with urban areas. Domestic cats can occur at high densities in urban areas and have been recorded preying a wide variety of species, based on the prey items brought 'home' (Woods, McDonald & Harris 2003). Cats are suggested as a major source of mortality for some bird species in the UK (Baker *et al.* 2008). The impacts of cats are however not simply from direct

²³ There are well developed plans to graze Hazeley Heath in the near future.

predation, it is also important to recognise that the simple presence of an artificially high number of predators in an area can have an impact. The presence of cats may result in potential prey species changing their behaviour, switching to different habitats and even modifying their breeding behaviour; these sub-lethal effects (essentially relating to a fear of cats) are hard to quantify but could have marked additional impacts (Beckerman, Boots & Gaston 2007).

- 5.10 A range of potential predators to the Annex I bird species and herptiles are associated with gardens and environments with more people and buildings. These include Brown Rat, Red Fox, European Hedgehog, Magpie and Carrion Crow. These species can occur at particularly high densities – higher than would be expected on the heaths. An overview of the impacts, and relevant studies is provided by Underhill-Day (Underhill-Day 2005). A study of woodlarks nesting on the Thames Basin Heaths found foxes, carrion crows and magpies to be the main nest predators (Eyre & Baldwin 2014), so changes in the abundance of these predators are likely to have direct impacts on the SPA populations.
- 5.11 Fires can start in a range of ways, including deliberate arson, children playing, campfires, barbeques, sparks from vehicles, discarded cigarettes etc. ‘Wild’ fires can have a catastrophic impact on heathland wildlife. During dry weather fires can spread rapidly and burn large areas, for example a fire in Wareham Forest in 2020 spread over 200ha of heathland habitat and was believed to have been started by disposable barbeques. Such fires result in direct mortality for the Annex I birds, herptiles, insects and potential loss of plant species. After a fire, it can take many years for the habitat to be suitable for the species to recolonise and the same vegetation communities do not always return.
- 5.12 Recreation and urban effects can clearly therefore undermine the conservation objectives for the relevant European sites (see Appendix 1 and Appendix 2 for links to relevant documents and further information). For the Dorset Heathlands SPA, the supplementary advice for each species states in relation to disturbance:

“Disturbance caused by human activity is particularly significant within parts of the Dorset Heathlands SPA because of its proximity to large urban areas. Without avoidance measures, the cumulative effect of new housing would be likely to lead to an increase in urban pressures (e.g. an increase in wildfires, damaging recreational uses, introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets – Underhill-Day 2005) on parts of the SPA with negative effects on [relevant species] likely. A strategic approach to avoiding and mitigating these potential impacts arising as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of housing growth.”

- 5.13 Similarly, the supplementary advice for the two Dorset Heaths SACs highlight the issues with respect to recreation and urban effects, in relation to the structure and function of the SACs:

“Typical species such as the rare reptiles are vulnerable to effects associated with heaths in urban locations such as a high incidence of fires, predation by domestic cats and trampling or disturbance of egg-laying sites. Public access to lowland heathland from nearby residential developments and other proposals that lead to an increase in visitor numbers, or changes in the pattern of public access may increase the frequency of these effects. These effects are most marked within 400m of heathland. A strategic approach to avoiding and mitigating for potential impacts arising from recreational pressure as a result of new residential development has been developed for the Dorset Heathlands in response to the significant levels of growth in emerging regional plans. The mitigation strategy for the Dorset Heathlands has now been in place since 2006, The Dorset Heathlands Planning Framework Supplementary Planning Document 2015 – 2020 (SPD) sets out the detailed approach to the avoidance and mitigation of adverse effects of development on the Dorset Heathlands. The guiding principle of the SPD is that there is no net increase on urban pressures”.

Mitigation

- 5.14 Urban effects and recreation impacts are synergistic and relate to the overall volume of housing. Impacts of development are therefore cumulative, i.e. additional new housing adds to the effect from existing housing. Development in close proximity to the heathland sites is likely to have the greatest impact, but development over a wide area has the potential to give rise to deleterious effects.
- 5.15 The issues of urban effects have long been recognised on the Dorset Heaths (De Molenaar, 1998; Haskins, 2000; Liley et al., 2007). The strategic approach to avoidance and mitigation for urban effects in Dorset is long established, with local authorities within 5km of the heaths setting out a joint approach in 2007 that has been subsequently been revised and updated, with the current iteration set out in a joint supplementary planning document that runs from 2020-25 (Dorset Council & BCP Council, 2020)²⁴.
- 5.16 The strategy consists of two mutually dependent and supporting policy mechanisms:
- Restrictions on development within 400m of heathland; and
 - Mitigation for particular types of development within 400m – 5km of heathland, involving:
 1. Strategic Access Management and Monitoring (SAMM); and

²⁴ See [relevant page on Dorset Council website](#) for details

2. Heathland Infrastructure Projects (HIPs), which include Suitable Alternative Natural Greenspace (SANG).

- 5.17 SAMP involves awareness raising, education and wardening as well as monitoring. HIPs cover physical infrastructure, such as enhancing existing greenspace or creating new spaces, targeted for recreation. These avoidance and mitigation measures are therefore designed to resolve issues associated with urban effects and recreation. Full details of how the various measures are established and implemented are set out in the SPD. Policy E8 in the Purbeck Local Plan describes the buffers and need for mitigation and the supporting text cross-references to the SPD.
- 5.18 Only around 3% (some 1500ha) of the former Purbeck District is beyond 5km from the Dorset Heathlands SPA or Dorset Heaths SACs, as such development within Purbeck will be almost entirely within 5km of a heathland site. The parts that do fall outside the 5km are mostly along the coast, where other constraints on development occur.

Review of Dorset Heathland Mitigation to date

- 5.19 Mitigation measures to date have included:
- On-site wardening
 - Education programmes delivered by the Urban Heaths Partnership and Dorset Dogs
 - Improvements to existing sites outside the heaths which have the potential to absorb additional access (such as Delph Woods)
 - Creation of alternative sites away from heaths (including a BMX area in Christchurch and contribution towards a multi-use play area as well as new sites for more general recreation)
 - Purchase of land adjacent to heaths ('heath support areas') to provide increased space for recreation
 - Installation of fire-fighting infrastructure on the heaths (such as fire hydrants)
 - On-site management works, such as path work to minimise erosion
 - Monitoring, including purchase monitoring equipment and both bird and people monitoring.
- 5.20 Money spent has been proportional to growth within the relevant local planning authorities. A key component in the delivery of the mitigation has been the Urban Heaths Partnership, employed through Dorset County Council. The Urban Heaths Partnership has involved a team of wardens who have undertaken the on-site wardening work, and much of the monitoring and education work. The team of wardens have worked across all local authority areas.
- 5.21 Monitoring data have been collected by the Urban Heaths Partnership (UHP) and are summarised in annual reports (e.g. Panter & Caals, 2020b). Monitoring includes vehicle counts, automated sensors to record visitor numbers, visitor interviews,

incident recording and bird monitoring. These data and results feed into the mitigation approach and are an integrated part of the mitigation. Selected results are summarised below.

Bird data

5.22 Analysis of trends for key bird species on the Dorset Heaths (Liley & Fearnley, 2014) suggest key bird species are doing relatively well, but there have been some marked fluctuations. For nightjar there is evidence that trends have been different on the urban and rural heaths, with increases on the rural heathland sites not being matched on more urban sites. The most recent count data (from annual monitoring funded through SAMM and also RSPB data) for selected Purbeck sites are given in Table 5. Data indicate that the three Annex I bird species have been relatively stable or increased in recent years.

Table 5: Summary of mean count (breeding pairs or churring males where applicable) for SPA bird species at selected heaths in and around Purbeck for a selection of sites and years. Sites and years able to be used differed for the different species.

Species	Sites	Early period	Later period	Mean count in earliest period	Mean count in later period	% change between periods
Dartford Warbler	Grange Heath, Great Ovens, Sandford Heath, Stoborough RSPB, Upton Heath, Winfrith & Tadnoll	2006, 2008, 2009, 2010	2015, 2016, 2017, 2018	13.3	13.4	↑1%
Nightjar	Arne, Grange Heath, Stoborough RSPB, Upton Heath	2011, 2012, 2013	2016, 2017, 2018	13.6	21.8	↑57%
Woodlark	Arne, Sandford Heath, Upton Heath, Winfrith & Tadnoll	2006, 2008, 2009	2016, 2017, 2018	1.1	1.3	↑15%

Engagement

5.23 Continued engagement with visitors via public facing bodies such as Dorset Dogs and the UHP is also an important part of mitigation by educating members of the public on appropriate responsible behaviour and raising awareness of the issues, as well as places to go instead. There are (as of early 2020) around 2320 members of Dorset Dogs, indicating the reach of the project. The recent Dorset Heath visitor survey showed 46% of interviewees had heard of Dorset Dogs and 41% of the UHP. 7% (49) of interviewed dog walkers were members of Dorset Dogs.

5.24 The 2019 Dorset heath surveys also showed high levels of awareness of sensitive habitats and species with 78% aware of habitats or species, compared to other heathland areas without public engagement mitigation or where such mitigation is in early stages (e.g. Breckland only 10% aware, (Panter, Liley, & Lowen, 2017). Furthermore, the specific details also appear to high on visitor radars, with 42% specifically mentioning breeding birds compared to 16% in Cannock Chase (Panter & Liley, 2019).

SANGs

5.25 With respect to SANGs, some monitoring data are available for key SANG sites in Purbeck. Of most interest is the Bog Lane SANG which was targeted to provide mitigation for the Westgate development in Wareham and the extensions to Upton Country Park (for which the new SANGs car-park lies in Purbeck). Counts of parked cars (from 16 visits spread over the year) at Bog Lane over the recent years indicate the site is perhaps becoming more popular, indicating that the site has been slowly drawing visitors. By contrast at Upton Country Park the count for the SANG car-park shows a clear increase over time as the SANG area has become very popular.

Table 6: Average number of vehicles recorded on a transect in each financial year for the five SANG sites. Number of spaces at each SANG parking location are shown in brackets. Updated from (Panter & Caals, 2020b).

Financial Year	Burnbake SANG 1 [4]	Bytheway Field 1 [24]	Frenches Farm SANG [6]	Stoborough SANG 1 [8] [†]	Upton Country Park SANG 1 [24]
14-15	-	7.0		0.5	-
15-16	0.3	6.2		0.4	8.8
16-17	0.6	8.9		0.4	12.2
17-18	0.1	9.3		0.9	17.6
18-19	0.1	8.4	1.9	0.4	17.8
19-20*	0.3	9.0	2.4	1.0	18.4

*13 counts only, as final count in March cancelled as during COVID-19.

† Bog Lane SANG refers to the main car park only, additional cars park along a layby outside and these are not counted.

5.26 Brief regular visitor surveys at SANG sites are conducted and written up by UHP. The interviews with members of the public can be used to ascertain how sites are performing. Surveys at Upton Country Park in 2015 observed around three quarters of interviewees were dog walkers, clearly a key target group for mitigation. It also showed alternative sites people visited included designated heathland sites, with the most common alternative site being Upton Heath and fourth most common was Wareham Forest. The most common reason given for visiting Upton Country Park was the variety of habitats and suggests the site functions to provide an interesting alternative,

reducing some of the pressure on other habitat types. For smaller sites, such as Frenches Farm and Bog Lane (surveys in 2018 and 2017 respectively), there are still consistently high levels of use by dog walkers (over 80%). But use is much more local to Purbeck and alternative sites focused to Upton Country Park, Upton Heath and Wareham Forest for Frenches Farm and Hartland Moor, Wareham Forest and Stoborough Heath for Bog Lane. Surveys by UHP on a now long-established SANG, ByTheWay, near Wimborne, showed relatively low numbers of visitors upon opening in 2012/2013, but 5 years later the visitor survey recorded a 140% increase in the number of interviewees over the same set time period.

- 5.27 There were early issues with the Bog Lane SANG, as visitor use was initially very low. Issues related to a lack of promotion, lack of maintenance, interpretation, signage and how the site has been landscaped, however monitoring and subsequent interventions have enabled many of these issues to be resolved. There are new signs directing potential visitors to the site from the Wareham by-pass and new maps indicating routes on the site. A launch event was held in 2017 and guided walks have been held.
- 5.28 Visitor numbers on SANGs are also monitored by UHP using a network of around 63 sensors, with 12 of these on SANG sites (Panter & Caals, 2020b). The sensors cover a range of locations including solely heathland sites, but also heathland sites with other habitats, or other visitor facilities and attractions (e.g. Moors Valley, Upton Country Park main car park, and Avon Country Park). The visit pattern for SANG and other Heathland Infrastructure Projects is the most similar to the solely heathland sites, with both these categories showing bimodal distributions of access with obvious peaks in access at 9/10 am and 4/5 pm. The highlighted similar patterns of use are likely to relate similar patterns of use, especially notable for groups such as dog walkers.
- 5.29 A recent visitor survey on the heaths (Panter & Caals, 2020a) provided a broad repeat and update of previous heath visitor surveys in Purbeck and across Dorset ((Clarke et al., 2006; Cruickshanks & Floyd, 2014). The recent survey was conducted at 23 locations across the Dorset Heaths and involved 946 interviews. Interviewees on the heaths were asked about other locations they visited. Overall, 7% of these named alternative sites were SANG/HIP and of those interviewees that named an alternative site, 12% named a SANG as somewhere else they visited instead of the heath.
- 5.30 It would therefore seem that there is evidence of SANGs working across Dorset and in Purbeck. The monitoring provides an important back-up, enabling additional promotion, interventions and targeting of sites that are being under-visited.

Review of mitigation options and approaches to mitigation elsewhere

- 5.31 The mitigation approach has been carefully designed and established, with strong input and direction from Natural England since the beginning. Evidence for impacts and mitigation approaches were collated (David Tyldesley Associates, 2005; Liley et al.,

2007; Underhill-Day, 2005), the approach has been tested at numerous public inquiries and local plan hearings and similar strategic mitigation approaches have now become established across the country, modelled on Dorset. For example, the use of a 400m exclusion zone (i.e. where there is a presumption of no development) has become an established policy approach and is specifically identified in the following locations:

- Across the Thames Basin Heaths (11 local planning authorities)²⁵;
- In the Brecks (e.g. Breckland District²⁶);
- Around the East Devon Pebblebed Heaths (East Devon District Council²⁷);
- Around Cannock Chase SAC (e.g. Cannock Chase Council Local Plan²⁸);
- At Ashdown Forest SPA/SAC (e.g. Wealden District's Core Strategy Local Plan)²⁹.

- 5.32 The combined use of SANG and SAMM type mitigation approaches, involving off-site greenspace provision and wardening on the heaths have also been adopted at a range of other locations, such as the Thames Basin Heaths, Cannock Chase and the East Devon Pebblebed Heaths. Similar approaches have also been adapted for coastal sites, such as the Solent.
- 5.33 The doctoral thesis by Allinson (2018) is the only openly available review of SANGs and their effectiveness, focussed on the Thames Basin Heaths area. Allinson's work included a postal questionnaire sent to 2000 interviewees across the Thames Basin Heaths area (within 5km of the SPA), work with focus groups and semi-structured interviews with those responsible for delivering SANGs. Allinson's postal survey found that significantly more residents visited SANGs compared to the SPA and new residents to the area were more likely to use SANGs compared to the SPA. Distance from home was a significant factor influencing choice of greenspace (i.e. the closer sites were to the interviewees home, the more likely they were to be visited), but interviewees also clearly did not necessarily visit their nearest greenspace
- 5.34 The widespread use of these mitigation approaches, modelled on Dorset, and evidence from other parts of the country, provides further assurance the approaches are robust, effective and have been subject to additional scrutiny and testing.

²⁵ See the Thames Basin Heaths Delivery Framework: <https://www.bracknell-forest.gov.uk/sites/default/files/documents/thames-basin-heaths-spa-delivery-framework.pdf>

²⁶ See 3.73 in the Breckland Core Strategy https://www.breckland.gov.uk/media/13758/Adopted-Core-Strategy-and-Development-Control-Policies/pdf/Adopted_Core_Strategy_and_Development_Control_Policies.pdf?m=637019919090870000

²⁷ See East Devon Local Plan, strategy 47 <https://eastdevon.gov.uk/media/1772841/local-plan-final-adopted-plan-2016.pdf>

²⁸ See para 4.89 pf Cannock Chase Local Plan https://www.cannockchasedc.gov.uk/sites/default/files/local_plan_part_1_09.04.14_low_res.pdf

²⁹ Wealden District Local Plan Policy EA2 file:///C:/Users/durwyn/Downloads/A1_Wealden_Local_Plan_January_2019.pdf

- 5.35 The former Purbeck District Council commissioned a report (Riley, Down, Hoffman Heap, Jackson, & Honey, 2016) to review options for heathland mitigation in the District, given the challenges of delivering the heathland mitigation. In particular the consultants were asked to focus on SANGs and whether there were other options for mitigation in Purbeck, given the District's more rural feel. The consultants reviewed mitigation approaches at other European sites and considered the special case of Purbeck. Their conclusions were:

"In conclusion, there appears to be no evidential basis on which to conclude that mitigation for a net increase in dwellings within Purbeck district over the Local Plan period is not required to avoid adverse effects on the Dorset Heathlands SPA, SAC and Ramsar site. There is also no evidential basis on which to move away from a 400m 'no net new residences' zone, given the high level of existing housing within very close proximity (400m) to the European sites and the likelihood that a similarly high level of net new housing would come forward without strategic controls. There is also no basis on which to exclude gypsy & traveller sites or previously-developed land from the prohibition on net new residential development within 400m.

SANG appear to be an achievable solution for much of the new housing expected in Purbeck district, particularly if this is focussed on large developments that will provide their own bespoke SANG. However, it is considered that in cases where strategic SANG cannot be achieved, such as may well be the case around Swanage, there is potential, given the small number of dwellings likely to be affected, to explore opportunities for improving strategic access to the wider countryside as an alternative to actual SANG. Individual proposals for this would require consideration on a case by case basis."

- 5.36 In this section we have summarised some of the monitoring data and evidence for the effectiveness of the mitigation approach for urban effects and heathlands. It is important that the approach is viewed as a package of measures. Development directly adjacent to the European Site poses a much higher risk, while mitigation measures are likely to be less successful, as such the 400m zone ensures risks are minimised and mitigation is possible. For housing beyond 400m, the education, awareness raising, provision and promotion of alternative sites and the wardening on the heaths all work to ensure adverse effects on integrity can be addressed.

SANG considerations and specific mitigation for different allocations

- 5.37 As part of this HRA, at each stage Footprint Ecology has discussed the revised housing allocations and the appropriate assessment findings with Natural England to check that the local Natural England staff concur with the findings and recommendations. Natural England have worked closely with the former Purbeck District Council throughout the preparation of the new Purbeck Local Plan, particularly in relation to the SANGs options to support the housing allocations. SANG options were initially presented within the Local Plan Options consultation. Following this, Natural England and the Council, and where relevant with developers/landowners have held detailed

discussions in relation to concerns and possible solutions. It is understood that Natural England are now able to support the housing allocations within the Main Modifications of the plan as a result of the progress made in relation to SANGs provision for each allocation.

- 5.38 The policies map within the Purbeck Local Plan at the Main Modifications stage shows SANGs for policies H4, H5, H6, H7 and also the SANG in relation to I5. SANGs are an essential part of the strategic mitigation approach for recreation pressure, and there is strong and clear policy wording within the environmental policies E7 and E8, and their supporting text to commit to the strategic approach for mitigating for recreation pressure, and the provision of SANGs. Confidence in the availability of potentially suitable SANGs to serve the housing allocations within the Purbeck Local Plan at the Main Modifications stage comes from the extensive work that Natural England has been doing with the Council, landowners and developers to establish viable SANGs options which are now set out and adequately secured.

Wool

- 5.39 The housing allocations for Wool are for around 470 dwellings at four sites as follows:
- Land to the west of Chalk Pit Road and Oakdene Road – 320 dwellings;
 - Land to the north east of Burton Cross Roundabout – 90 dwellings;
 - Land to the north west of Burton Cross Roundabout – 30 dwellings;
 - Land to the north of the railway line – 26 dwellings;
 - 65 extra care units.
- 5.40 The allocations at Wool are relatively far (for Purbeck) from heathland sites and the key nearby heathland is Winfrith Heath; Hethfelton Plantation is also readily accessible to the east of Wool, with parking on the A352. The allocations do not bring in any new sites from those previously proposed at Options and within the New Homes for Purbeck consultation.
- 5.41 Potential impacts of development at Wool relate to increased recreation at the nearby European heathland sites, which include Winfrith and Tadnoll. The SANG at Coombe Wood, is large (48ha) and has the potential to provide a visitor destination to rival Winfrith Heath. The site is discussed in some detail within Liley *et al.* (2010). Coombe Wood is elevated, with expansive views and, with appropriate management could provide an appealing site for dog walking and other recreation. Opening the site up to give a more open feel will be important and the SANG is relatively narrow in parts so careful design and/or the inclusion of additional land will be necessary to ensure it does not feel constrained.
- 5.42 It will need to be targeted towards local residents and there may need to be some consideration of ensuring easy access to the SANG from developed areas. The SANG is likely to function much more effectively for residents living south of the A352 rather

than the north. A SANGs brochure produced by the Lulworth Estate and Savills explores how the SANG would be managed and enhanced for access, including a phased plan for improvements. Natural England has previously confirmed with the former Purbeck District Council that the SANG would provide adequate mitigation and as such it is possible to conclude no adverse effect on integrity for the Dorset Heathlands SPA/Ramsar or the two Dorset Heaths SACs.

Redbridge Pit/Moreton Station

- 5.43 The new housing allocation for Redbridge Pit/Moreton Station, accommodates around 490 new dwellings and 65 extra care units.
- 5.44 The nearest heathlands are Warmwell Heath and Winfrith/Tadnoll Heath. There is roadside parking and direct access on to Tadnoll Heath to the south of the development location. Likely significant effects to the heathland SPA/SAC interest at Winfrith/Tadnoll and Warmwell relate to increased recreational use and include trampling, dog fouling, disturbance to ground nesting birds, increased fire risk and other urban effects.
- 5.45 Around 24ha of SANG have been proposed as part of the previous Options consultation. The SANG is reasonably large but the challenge will be to create a suitable alternative to the heaths given that the site is an open pit. It may take many years before the SANG could fully develop its potential into a suitable and appealing visitor destination, and the SANG would need to be functioning prior to development being occupied. Additional land, outside the pit, is likely to be necessary to ensure a functioning SANG can be delivered within a reasonable timescale. Natural England has been in discussion with the developer, the former Purbeck District Council and Dorset Wildlife Trust (who are responsible for the management of the heath at Winfrith/Tadnoll). The developer has proposed that a large field adjacent to the designated sites could be used to support visitor/habitat management and this would allow for the relocation of a car-park and disperse visitor pressure on the heaths. Previous advice from Natural England³⁰ is that there is a reasonable and robust chance to avoid additional pressure on the designated sites.
- 5.46 The sites include the proposal to include the caravan park site for housing and relocate the caravan park. The implications of re-locating the caravan park will need to be factored in to the SANG considerations for these allocations.

Lytchett Matravers

³⁰ Letter from Nick Squirrell to Purbeck District Council dated 25th September 2015

- 5.47 The housing proposed for Lytchett Matravers is for around 150 homes over three sites as follows:
- Land to the east of Wareham Road – 95 dwellings
 - Land at Blaney’s Corner to the south of Wimbourne Road – 25 dwellings
 - Land to the east of Flower’s Drove – 30 dwellings
- 5.48 The sites now proposed at the Main Modifications stage are those previously considered at Options and within the New Homes for Purbeck document. Lytchett Matravers lies close to Upton Heath, Corfe Hills, Holton Heath and Sandford Heath (all part of the Dorset Heathlands SACs/SPA/Ramsar).
- 5.49 There are risks of ‘urban effects’, such as increased fire occurrence, at nearby heathland sites such as Upton Heath. There are potential impacts of disturbance to breeding Annex I birds to sites within a short journey, particularly Wareham Forest, Upton Heath and Ham Common (see Appendix 2 in White et al., 2008 for details of locations and travel times from Lytchett Minster). There are also potential for impacts from recreation to the SAC interest of the heaths at nearby sites with impacts such as trampling and dog fouling.
- 5.50 There have been discussions with the developer/landowner and Natural England in relation to the three housing sites, the two to the north-east of the village (30 and 25 units), and the one to the east of Wareham Road (95 units). The option for SANG provision is now supported by Natural England for these sites, and discussions have also included the way in which greenspace within the development and routes to the SANG through the village can be designed and promoted. The SANG has been granted planning permission subject to conditions and Section 106 Agreement.

Upton

- 5.51 The housing site proposed for Upton is for around 90 homes on the eastern edge of Upton, next to the A35. Permission has already been granted for 70 houses close to the proposed allocation. The initial 70 house development was mitigated for by the provision of a SANG, the capacity of which is also able to provide the mitigation necessary to accommodate the additional proposed 90 development units.

Small housing sites

- 5.52 Policy H8 within the Plan at Main Modifications provides for small housing sites next to existing settlements across the Purbeck area. Potentially suitable sites are shown in Appendix 2, but these are not relied on in the plan and H8 is a criteria-based policy to cover such development proposals. This is in accordance with the consultation responses supporting a spread of housing across the Purbeck area. Any such housing will need to comply with policies relating to European site mitigation, and the Main Modifications include a change to policy wording to ensure this is clear. As such, small

sites will need to contribute to the strategic mitigation approach through CIL and as such mitigation can be delivered effectively. Project level HRA will be required and should ensure that there is suitable HIP given the location and site-specific circumstances.

Wareham – Neighbourhood plan housing allocations

- 5.53 The Local Plan includes 207 dwellings in Wareham to be delivered through a developing neighbourhood plan. The draft neighbourhood plan makes provision for around 205 homes on 6 sites plus 100 homes as a result of predicted windfall development. However, the 2020 5YHLS report and Local Plan figures are slightly different (at 207 homes) as they take account of the Health hub proposal and the adjustments necessary to take account of the care provision. The windfall allowance (100 homes) included within the draft neighbourhood plan is included within the overall local plan windfall allowance to avoiding double counting. The consultation on the revised draft neighbourhood plan (Regulation 14 stage) closed in mid-June 2020. Responses are being considered before re-drafting and submitting to the Local Authority. The neighbourhood plan had been previously submitted and then withdrawn. This was due to two key changes.
- 5.54 The first change related to European site mitigation. It had not been possible to agree with the landowner the provision of deliverable Suitable Alternative Natural Greenspace (SANG) west of Westminster Road. Alternative mitigation arrangements have since been agreed and are set out in a Statement of Common Ground between the Town Council, Dorset Council, Natural England and the owner of the Bog Lane SANG. The second change was the new Dorset Council and new plans for the former Middle School site and redevelopment of the Bonnets Lane site. These proposed higher numbers of dwellings than before, which meant that the housing requirement for Wareham could be met within the existing settlement boundary without using greenfield land. This results in the housing growth for Wareham being closer to the town centre and not in the area close to Wareham Forest, where there are particular risks for the European site interest. These are explored in the HRA that accompanied the new homes for Purbeck consultation.
- 5.55 The current version of the Wareham neighbourhood plan provides for 45 homes north of the railway line, on brownfield land near the station. The HIP component of mitigation will be facilitated by Dorset Council through contributions towards strategic SANG and this will require confirmation with Natural England as part of project level HRA work. South of the Railway Line the allocations in the neighbourhood plan total 162 dwellings. These comprises 102 dwellings on sites GS2 (middle school/health hub) and GS3 (Bonnets Lane), 40 dwellings on the Hospital and Health Centre site (H8) and 20 dwellings on the former gas works and Auto Point sites (site H7). This scale of new housing development indicates that the provision of a SANG or access to SANG

capacity will be required. The statement of common ground between the councils, Natural England and the owner of the Bog Lane SANG confirms that Natural England have agreed that the Bog Lane SANG can deliver the necessary HIP mitigation. The Bog Lane SANG is already established, as mitigation for the Westgate Development on Worgret Road. The SANG covers an area of 14 Ha, is suitably located and with improvement has capacity to mitigate for the effects of the developments proposed to be allocated in the Neighbourhood Plan south of the Railway.

- 5.56 As such, mitigation for the sites in the Wareham neighbourhood plan is achievable and can conform to the strategic mitigation approach set out in the Dorset Heathland Planning Framework.

Bere Regis – Neighbourhood plan housing allocation

- 5.57 The Bere Regis Neighbourhood Plan provides for 105 homes across five housing locations, which are spread around Bere Regis, with the largest allocation, Back Lane, being to the north and close to the proposed SANG that will be delivered by this development. There are two allocations to the south of Bere Regis; White Lovington and Former School. These two allocations have been made with full regard for the 400m buffer and lie immediately outside that exclusion zone. Provision of housing sites in Bere Regis is discussed here as it is required to contribute to the required quantum of housing for Purbeck as part of the Purbeck Local Plan.
- 5.58 To the immediate south of Bere Regis is Black Hill, a privately owned but publicly accessible part of the Dorset Heaths SAC and Dorset Heathlands SPA. This is a popular site for walking and dog walking, particularly given the panoramic views that can be gained from the top of the hill. There is a good footpath network leading from Bere Regis to Black Hill. This footpath network is very easily accessible from the White Lovington and Former School sites.
- 5.59 Bere Regis benefits from an attractive network of open spaces, and there is a focus on open space along the Bere Stream. There are number of other accessible areas around the periphery of Bere Regis, and most of these open spaces have an attractive landscape, a natural feel and provide a range of wildlife habitats for people to enjoy. The addition of 5.5 ha of SANG to serve the housing allocations has been the subject of longstanding discussions between the Bere Regis Community, the former Purbeck District Council, the potential developer, landowner and Natural England. Following the HRA of the Neighbourhood Plan, Natural England confirmed their support for the proposed SANG, details of which are provided in the HRA report.

Morden Park SANG and holiday park

- 5.60 Land at Morden is proposed for a holiday park, to provide a large area of public open space and around 80-100 holiday chalets. The holiday park will only be permitted to

facilitate the delivery of a strategic SANG. The location is sensitive as it is very close to the Dorset Heathlands SPA/Ramsar and the Dorset Heaths SAC. Previous HRA work at Issues and Options and Options state raised concern that holiday chalets were proposed within 400m of the European site boundary. Data on the distribution of key bird species were also plotted in relation to the proposed country park and chalets. Likely significant effects to the interest features of the designated sites would include disturbance to Annex I birds, increased fire incidence, trampling, dog fouling, water quality. The areas outside the designated site boundary are likely to be important for nightjar and woodlark, in terms of foraging and possibly even breeding sites, and therefore are functionally linked to the SPA and areas of Wareham Forest (outside the SPA) support internationally important numbers of both woodlark and nightjar in their own right.

5.61 Careful, detailed design and discussion with Natural England will be essential to consider the constraints at this location and determine whether the chalets and country park can be designed so as to have no adverse effects on the integrity of the European site. These discussions have begun and Natural England is in principle supportive of the proposal in terms of its ability to provide adequate and robust mitigation. The SANG must be completed and open for use before the use of the holiday park begins. A detailed project level HRA will need to set out a comprehensive suite of mitigation measures and the development design will need to fully accommodate constraints and prevent impact pathways. Design elements to minimise impacts to the European sites might include:

- The chalets being only on the eastern side of the lake, and therefore set back from the designated heathland and outside the 400m zone
- Dedicated barbeque facilities and dog exercise areas provided for the chalets well away from the heathland (avoiding fire risk)
- Ranger presence and no fires policy to limit fire risk
- Careful management of the vegetation to minimise fire risk in the area around the chalet
- Restrictions on dogs for visitors using the chalets
- Routes within the country park focussing access away from the designated sites and focussing access along the eastern shore of the lake and the fields near the B3075.
- Parking for the country park and focal point for visiting set close to the B3075, ensuring access is set well back from the heathland
- Provision of extensive areas for dog walking well away from the heathland – ideally with areas that are fenced from the road, minimal grazing and safe for dogs to be off the lead.
- Provision of access to draw visitors away from Sherford Bridge and from walking onto Morden Bog National Nature Reserve.
- Access in the western part of the site carefully zoned to ensure access to the heathland is not promoted
- Measures to ensure the site is ‘nitrogen neutral’ (see Bryan & Kite, 2013)

Potential for SANG

- 5.62 The HRA for PLP 1 identified the need for a SANG in the north of the then Purbeck District, and the need for strategic SANG in this area was confirmed by Natural England at examination. In the HRA report at Options stage, the potential for part of the proposal to come forward as a strategic SANG is discussed, i.e. a SANG that provides capacity for absorbing recreation pressure from other developments in the Purbeck area. Map 5 in the Options HRA illustrates visitor postcodes from surveys undertaken at Sherford Bridge. Surveys were undertaken at the roadside parking area just by the bridge, at the south-east corner of the area proposed for green space. The survey data originates from 2008 (see White et al., 2008 for details) and then more recently as part of the Wild Purbeck NIA visitor work (Cruickshanks & Floyd, 2014). The Options HRA provided a discussion in relation to that survey data and made a number of recommendations for effective SANGs design that have since informed discussion and further progression with the Plan. The location at Morden is in many ways ideal for a strategic SANG as it is easily accessible from the North-east and from the south. The postcode data show Sherford Bridge already draws visitors from a wide radius. For those travelling from the south, there are other parking locations along the B3075 that provide access to heathland, e.g. at Great Ovens. These parking locations are however mostly small, informal and it is easy to envisage that a SANG could work well to draw visitors away from these locations.
- 5.63 The following design elements would be necessary for the site to function effectively as a SANG:
- Free parking
 - Good, easy and safe access to the car-park from the road
 - Careful design to provide safe, dog-friendly exercise areas that replicate the experience gained from walking within the main block of Wareham Forest and Morden Bog NNR.
 - Relatively wild, low key access provision, ensuring that the Country Park doesn't become an attraction in its own right, with the potential risk of drawing more visitors to the area who then deflect local dog walkers etc onto the more sensitive areas.
 - Careful promotion, targeting residents rather than tourists
- 5.64 As residents of the chalets would clearly be likely to explore the full extent of Wareham Forest (which would be the draw to staying there), the SANG would have to draw users who would otherwise be using the forest. The capacity of the SANG may therefore be at least in part absorbed by the new chalets, and the potential for the SANG to function as a strategic SANG to mitigate for other development in the Purbeck area will need to be carefully assessed, bearing in mind the design of the chalet area.
- 5.65 Additional evidence gathering might include visitor surveys at similar chalets in other parts of the country, ideally within a similar forest setting, to determine what kind of

activities are undertaken and how much they stay within the area adjacent to the chalets and how much they visit more widely.

- 5.66 At the local plan level, it can be concluded that it would be possible for a strategic SANG to function and in many ways the location is ideal. New facilities here could be linked with management of roadside parking along the B3075 to better manage access across this part of Wareham Forest. Ideally parking locations at Great Ovens and at Sherford Bridge could be closed/reduced in order to push existing use towards the SANG. As such there are some clear positive benefits for the European sites. Potential constraints relate to the chalet accommodation and how these can be made compatible with the SANGs delivery, which need to be developed in more detail at project level HRA.

EE1 – Employment land supply

- 5.67 Employment development near heathlands could involve people commuting across heaths and using heathland areas in their breaks. As such there is a potential risk associated with increased employment land close to heathland sites.
- 5.68 The main employment sites are the Dorset Innovation Park, which lies close to the Winfrith, Tadnoll and East Knighton Heaths – which are part of the Dorset Heathlands SPA/Ramsar and Dorset Heaths SAC and Holton Heath – which is adjacent to Holton Heath and Sandford Heath – part of the Dorset Heathlands SPA/Ramsar and Dorset Heaths SAC, with also part of the Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC nearby.
- 5.69 The Dorset Innovation Park is accessed from the east and the Power Station (in the process of being decommissioned) forms a barrier between Winfrith/Tadnoll Heaths and the employment area. As such there is a barrier to direct access. Checks of visitor surveys at Winfrith and Tadnoll (Panter, 2015, 2016) provide no evidence of people visiting on work-breaks/from their workplace. There is footpath access to Knighton Heath from the entrance to the employment park, however it is over a kilometre from the start of the path to the corner of the heath, and as such is beyond the distance people will travel in their lunch break. The Innovation Park itself is large and contains open space and grassland suitable for exercise and recreation use during breaks.
- 5.70 At Holton Heath, a large area of the adjacent heathland, to the east of the employment area, was used during the second world war as a munitions factory and is contaminated with asbestos. Access is prohibited and the site, managed by Natural England is fenced and signage indicates the site is contaminated and dangerous. While incursions of the fencing do occur and there are issues at the site (for example with raves), access from employees during work breaks etc. is highly improbable. Sandford Heath lies to the west of the employment area, is open access and crossed by two footpaths. However, the access onto the heath is over 500m from the western

edge of the employment area, and there is no direct vehicular access. As such recreation use in breaks etc. is not a concern. The main access to the Holton Heath employment area – by bike or car – is along the A351 or by train and these are the routes commuters are likely to use.

- 5.71 Impacts from lighting, noise or contamination (e.g. dust, litter) could arise where there are new employment uses directly adjacent to the European site boundaries. Risks will be dependent on the particular site specific details and will need to be resolved at project level HRA.
- 5.72 As such recreation impacts or urban effects on the Dorset Heaths SACs/SPA/Ramsar as can be ruled out, alone or in-combination.

Conclusions: recreation and urban effects

- 5.73 The mitigation approach for the Dorset Heaths is long-established, has provided the model for other similar strategic mitigation schemes across the country and has been refined and updated over time. The mitigation and avoidance measures include a 400m zone around the heaths that ensures particularly harmful development does not occur. Mitigation measures for development beyond 400m are secured in perpetuity. As such the mitigation strategy ensures a conclusion of no adverse effect on integrity for the Dorset Heaths SACs/SPA/Ramsar from urban effects and recreation, alone or in-combination.
- 5.74 The current SPD runs until 2025 and this provides an opportunity for review. Both Dorset Council and BCP Council are preparing new local plans for the two Council areas and these will replace the six current local plans. The process will review the different approaches in order to provide consistent advice in future iterations of the SPD. The review should include analysis of visitor data, housing data and mitigation delivery to identify gaps in HIPs provision, checking on potential capacity, the relative visitor catchments of HIPs and opportunities for further mitigation. For example, by reviewing the strategic SANGs and smaller SANGs in place and their respective visitor catchments, future HIPs can be targeted. This will ensure any update to the SPD will deliver the right mitigation for the scale of growth proposed.

6. Appropriate assessment: Fragmentation and mobile species

6.1 Screening identified likely significant effects for the following policies alone:

- V1 – Spatial strategy for sustainable communities (Dorset Heathlands SPA/Ramsar, River Avon SAC);
- H1 – Local housing requirement (Dorset Heathlands SPA/Ramsar);
- H2 – The housing land supply (Dorset Heathlands SPA/Ramsar);
- H4 – Moreton Station/Redbridge Pit (Dorset Heathlands SPA/Ramsar);
- H5 – Wool (Dorset Heathlands SPA/Ramsar);
- EE1 – Employment land supply (Dorset Heathlands SPA/Ramsar).

River Avon SAC

- 6.2 A consultation response relating to the HRA that accompanied the submission version of the Purbeck Local Plan raised issues with Salmon and the River Avon SAC (and, further east, the Itchen SAC) citing research that shows inter-mingling of the Salmon population between various chalk rivers (Ikediashi *et al.*, 2018). The suggestion was that issues that might affect Salmon in the River Frome or Piddle, could undermine the conservation objectives for the River Avon SAC or River Itchen SAC.
- 6.3 Chalk streams and rivers are a rare and special habitat, characterised by pure, mineral rich water, relatively constant water temperature and particular aquatic plant communities that can be very species rich (Lake, Liley, Still, & Swash, 2015). The 2018 paper by Ikediashi *et al.* (2018) does highlight that the chalk rivers (the study included the Rivers Frome, Piddle, Avon, Test and Itchen) support a population of Salmon that is genetically different. The authors suggest that the Salmon may be homing back to a general chalk signature. The authors compared the Salmon genetics from the chalk rivers to populations on other south-west rivers, and even those as far afield as Norway and France. Their results indicate the Salmon from the discrete cluster of chalk rivers and markedly different from nearby rivers in the south-west and that non-chalk river Salmon from the south-west are genetically closer to Salmon in Norway than those from (relatively) nearby chalk rivers.
- 6.4 While these results highlight that Salmon in the chalk rivers are a discrete sub-population, the literature also shows evidence of limited movements between the different chalk rivers. So, while the chalk-river Salmon are closely-related, the level of actual mixing is actually low. In the Ikediashi *et al.* (2018), the authors found a lack of genetic differentiation between the populations in different rivers, but they did find significant patterns of isolation by distance, i.e. the further apart genetic samples were collected, the more likely they were to be different. The Piddle and Frome are adjacent

and share the same estuary (both enter Poole Harbour by Wareham), and the Test and Itchen also share the same estuary (Southampton Water). Ikediashi *et al.* state that “the geographic distance between these rivers does play a role in defining genetic distances between populations”.

- 6.5 Ikediashi (2015) provides more detail on the genetic differences between the different chalk rivers. The results indicated that the salmon were divided into three discrete groups, i.e. 1) the Frome & Piddle, 2) the Avon and 3) the Test & Itchen. The 2015 thesis also refers to the significant pattern of isolation by distance between Salmon in these five rivers was also identified. As such, it would appear that the chalk river Salmon are very different from Salmon elsewhere along the south coast of England, but there is also separation between the different chalk rivers.
- 6.6 One other study highlights Salmon interchange between the different chalk rivers and confirms it at a low level. In a radio-tagging study of Salmon in the River Avon (Solomon, 1991), 1.8% Salmon tagged on the Avon were reported from other rivers besides the River Stour and River Avon (these two rivers share the same estuary and are very close). These fish from other rivers were either caught by anglers or detected by the scanners that were in operation on the Piddle and Frome. The authors extrapolate from the data to account for fish that went ‘missing’, i.e. were not recorded after tagging and suggest that overall around 6.5% of Salmon from the Avon are likely to go to other rivers besides the Avon or Stour. Those 6.5% would be likely to be found across multiple different rivers, such as the Test, Itchen etc., as well as those in Purbeck.
- 6.7 As such it appears that mixing between the River Avon and rivers in Purbeck can occur, but at low levels. Risks from the Purbeck Plan for Salmon on the River Avon SAC are likely to therefore be very low. All specific allocations and plan elements are set well back from either the Piddle or the Frome, with the sites around Wool the closest. Spawning sites, where Salmon might be particularly vulnerable are upstream of the tidal limits and are likely to be mostly outside of the Purbeck area area addressed by the Plan. Public access is very limited along the whole length of the Piddle/Frome, and fishing access and numbers are managed through local fishing clubs, further limiting likely links between Plan elements and the River Avon Salmon.
- 6.8 Natural England’s site improvement plan for the River Avon recognises that Salmon are declining and the population level is below the critical conservation level. No mention is made of issues on the Frome, Piddle or other chalk rivers. The River Avon SAC conservation objectives supplementary advice, produced by Natural England, indicate that the decline in Salmon on the Avon is due to be due to a step change in climate effecting rainfall patterns and temperature. The impact of summer low flows and high temperatures are now considered to be the principal limiting factors on the recovery of the population. The supplementary advice for Salmon does not include the Frome, Piddle or other rivers (beside the River Avon) in the distribution of supporting habitat

or extent of supporting habitat and no mention is made of these other rivers in the conservation objectives.

- 6.9 As such adverse effects on integrity for the River Avon SAC and Salmon can be ruled out, alone or in-combination. In drawing this conclusion checks have been made with both Natural England and the Environment Agency.

Dorset Heathlands SPA/Ramsar

- 6.10 The following Annex I bird species will roam widely and utilise areas away from heathland:
- Nightjar;
 - Woodlark;
 - Hen Harrier;
 - Merlin.
- 6.11 Nightjars are the main species of concern. Studies of Nightjar in the Purbeck area have shown that birds will fly a considerable distance away from the breeding sites to feed at night (Alexander & Cresswell 1990; Cresswell 1996). These studies radio-tracked birds and showed that they were leaving forest clearings (most of the tracking was conducted in conifer plantations) to feed in deciduous woodland, orchards, village gardens and they also used wetland sites such as streams, small ponds and water meadows. Cresswell (1996) also noted that radio-tracking from an open heathland site (Hartland Moor) found birds were using nearby saltmarsh.
- 6.12 Nightjar feed on insects and predominantly catch them in flight, either in sustained flight or 'fly-catching' from a perch or the ground (see Cresswell 1996 for details). Cresswell (1996) argues that habitats used on foraging trips - deciduous woodland and wet grassland in particular - may be of considerable importance to Nightjar: "when it comes to Nightjar conservation, we believe that there may be a need to consider both breeding and feeding habitats".
- 6.13 Significant urban growth around heaths may therefore impact on Nightjar. The concerns would relate to:
- The direct loss of foraging habitat that is functionally linked to the SPA;
 - Flight paths and access to foraging habitat being blocked or restricted by the presence of built development.
- 6.14 Nightjar are summer migrants and on territory from May through to August. During this time, it is likely that different areas and habitats will be important for foraging. Different areas are likely to be important depending on the weather (for example some areas will be more sheltered than others), depending on prey abundance (different insects will peak at different times and in different habitats) and for

individual Nightjar (for example requirements may be different just after migration or when feeding chicks), as such it is expected that a range of habitats are likely to be important.

- 6.15 Off-site foraging for Nightjar has been a focus in the area around Poole in recent years, where there has been growing pressure to develop sites around Canford Heath. HRA work undertaken for the Borough of Poole Local Plan in 2018 (see Hoskin, Liley, & Underhill-Day, 2018) drew on GPS tracking, commissioned by developers (Souter, 2017). The use of GPS tags allows the locations of birds to be recorded at very regular intervals – for example every 2 minutes. Results highlighted that Nightjar were using areas outside the heaths, often for extended periods. Multiple birds were using some locations and there appeared to be limited use of urban areas. The tagging surveys have been continuing and a ringing group has also been undertaking GPS tracking at other Dorset heathland sites. While results are still interim and as yet not published, they highlight that Nightjar do forage very widely and regularly move between heathlands and across the landscape.
- 6.16 In the absence of the complete results from the recent Dorset studies using GPS trackers, the original radio-tracking studies in Dorset provide the best guide as to the range that birds will travel off-site, with birds reported travelling up to 7km (Cresswell, 1996).
- 6.17 Woodlark will utilise a range of open and early successional habitat for foraging and during the winter can remain close to the heaths, for example on nearby farmland. They do not roam to the same extent as Nightjar and their occurrence off-site will be limited to areas of arable, acid grassland or clear-felled forestry. The two raptor species, Hen Harrier and Merlin are winter visitors that will roam widely to hunt, often returning to the heaths at dusk to roost. The raptors will hunt over a range of open habitats including coastal habitats (saltmarsh, reedbed) and farmland.
- 6.18 The risks with new housing would relate to flight lines, commuting routes and foraging habitat being lost. The importance of off-site areas are highlighted in the supplementary conservation advice (Table 7).

Table 7: Selected examples from the conservation objectives (supplementary advice) for the Dorset Heathlands SPA, highlighting the importance of off-site habitats for different Annex I bird species that are qualifying features.

Species	Attribute	Target	Supporting and explanatory notes
Hen Harrier	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting, feeding and/or roosting areas	The ability of birds to safely and successfully move to and from feeding and roosting areas is critical to adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat, for example hen harriers regularly forage around of Poole Harbour. During winter, Hen Harriers form communal roosts at night. These can hold significant numbers of individuals and in the Dorset Heaths roosts are generally found in heathland or mire. Hen harriers are birds of open landscapes, hunting low over the ground, circling areas several times and surprising and flushing their prey. They usually avoid closed-canopy woodland and conurbations.
Nightjar	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting, feeding and/or roosting areas	The ability of nightjar to safely and successfully move to and from nesting, feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. Nightjars are insectivorous, feeding primarily on moths and beetles. Nightjar regularly fly away from their nesting sites (up to 7km, Alexander and Cresswell 1990) using a variety of habitats other than heathland to forage although woodland and woodland edges are a preferred foraging habitat (Cresswell 1996). In urban areas undeveloped corridors may be important in maintaining connectivity between nesting and foraging areas since nightjar and not known to forage over urban areas. Development that might curtail this connectivity, such as urbanisation of an undeveloped corridor, must be assessed for their impact on the part of the SPA affected.
Nightjar	Extent and quality of supporting foraging habitats	Maintain the extent and quality of key non heathland foraging habitats	The foraging range of nightjar is known to extend up to several kilometres from their nest sites and birds typically forage in non-heathland habitats (Alexander and Cresswell 1990) with a preference for deciduous woodland (Cresswell 1996). The density of nightjar in a heathland patch was positively correlated to the amount of surrounding woodland (Liley & Clarke, 2003). Much of the woodland or associated habitat likely to be critical for foraging will occur outside the SPA. The objective is to maintain the foraging resource available to each breeding nightjar so full assessment of any proposals that may affect the extent of quality of foraging habitat is required.
Woodlark	Connectivity with supporting habitats	Maintain the safe passage of birds moving between nesting, feeding and/or roosting areas	The ability of the feature to safely and successfully move to and from nesting, feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant. A significant number of woodlark territories occur outside the SPA, mostly on areas of rotational forestry or areas associated with sand and gravel quarries.

6.19 For all the species highlighted above, issues will relate to where any development or changes in land-use would lead to a loss of foraging habitat or commuting routes. Reviewing the sites in the Purbeck Local Plan at Main Modifications indicates that none of the housing sites creates a marked barrier between potential foraging areas (such

as floodplain grassland for Nightjar) and heathland areas. None of the housing results in heathland patches being cut-off or isolated from other patches, as has happened historically in the Poole/Bournemouth conurbation. The 400m exclusion zone ensures no loss of functionally-linked land directly adjacent to heaths and provides further confidence that issues can be eliminated.

- 6.20 The H4 Moreton Station/Redbridge Pit allocation represents a relatively large single block of land and is relatively close to Winfrith and Tadnoll (just under 1km at it's closest). The general area has the potential to hold foraging habitat for Woodlark and Nightjar. Project level HRA will need to ensure checks are made for records and potential habitat and site design incorporates suitable habitat provision and mitigation.

Employment sites

- 6.21 The employment sites being taken forward in the local plan at policy EE1 are sites that are included within PLP1. The main allocations are for Holton Heath Trading Park at Sandford and Dorset Innovation Park at Wool. Additional capacity is promoted within policy EE12 for the Old Milk Depot (0.3ha capacity remaining) at Corfe Castle and Sandford Lane Estate (0.1 ha capacity remaining) at Wareham. For these latter small sites, project level HRA should check for potential risks through impact pathways such as contamination, light and noise, which where present should be mitigated for with appropriate measures such as screening, fencing and building design.

Holton Heath Trading Park

- 6.22 The proposed employment development here is to fulfil the last remaining capacity at a site that has been substantially developed. It is located alongside Holton Heath and close to Blackhill and also to Sandford Heath. Blackhill is an isolated patch of designated heathland and contains important populations of herptiles. The site is directly adjacent to the SPA and development right to this boundary that may result in noise, light, dust or litter or other contamination into the SPA will need to be controlled. Nightjar occasionally breed here and concerns with employment development at this location relate to fragmentation and the increasing isolation of Blackhill.
- 6.23 The promoter for this employment site has worked with Natural England to develop a proposal which provides a heathland link between the heathlands. Management of any heathland link needs to be secured in the long term and project level HRAs for completion of remaining capacity will need to secure any measures necessary to fulfil the agreed mitigation for the whole site. Progression of this previously agreed employment allocation can be undertaken without adverse effects on the nearby Dorset Heathlands, and project level HRA should secure any detailed mitigation measures.

Dorset Innovation Park

- 6.24 Natural England and the Natural Environment Team at Dorset Council have been working closely with the developer for this site to minimise impacts on biodiversity, and seek suitable enhancements for the site that will provide a supporting biodiversity function for nearby designated heathland. The site will be developed in accordance with good practice, including an agreed masterplan and a Construction and Environmental Management Plan (CEMP). Progression of this previously agreed employment allocation can be undertaken without adverse effects on the nearby Dorset Heathlands, and project level HRA should secure any detailed mitigation measures.

Conclusions: fragmentation and mobile species

- 6.25 Adverse effects on integrity, alone or in-combination, from fragmentation and loss of functionally-linked land can be ruled out for Salmon and the River Avon SAC and for heathland birds and the Dorset Heathlands SPA/Ramsar. For the employment sites at Holton Heath and the Dorset Innovation Park, given the proximity to European heathland sites, project level HRA should secure any detailed mitigation measures which may be required in the detailed site design.

7. Appropriate assessment: Recreation at non-heathland sites

7.1 Screening identified likely significant effects for the following policies alone:

- V1 – Spatial strategy for sustainable communities (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC, Poole Harbour SPA/Ramsar)
- H1 – Local housing requirement (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC, Poole Harbour SPA/Ramsar)
- H2 – The housing land supply (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC, Poole Harbour SPA/Ramsar)
- H6 – Lytchett Matravers (Poole Harbour SPA/Ramsar)
- H7 – Upton (Poole Harbour SPA/Ramsar)
- I5 – Morden Park SANG and holiday park (Poole Harbour SPA/Ramsar)

7.2 Screening identified likely significant effects for the following policies in-combination with other elements of plan and other plans/projects:

- H4 – Moreton Station/Redbridge Pit (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC)
- H5 – Wool (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC)
- H6 – Lytchett Matravers (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC)
- H7 – Upton (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC)
- H8 – Small sites next to existing settlements (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar, Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC)
- I5 – Morden Park SANG and holiday park (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC)

Introduction

7.3 In the UK there is considerable overlap between nature conservation and recreation. Many of our most important nature conservation sites have legal rights of access, for example through Public Rights of Way or Open Access through the Countryside and Rights of Way Act (CRoW) 2000. People are often drawn to sites that are important for nature conservation as they are large, scenic and often few other alternatives exist. Recreation use can include a variety of activities, ranging from the daily dog walks to competitive adventure and endurance sports. There can be a difficult balancing act between providing for an increasing demand for access without compromising the integrity of protected wildlife sites.

- 7.4 There is now a strong body of evidence showing how increasing levels of access can have negative impacts on wildlife. Visits to the natural environment have shown a significant increase in England as a result of the increase in population and a trend to visit more (O'Neill, 2019). The issues are particularly acute in southern England, where population density is highest. Issues are varied and include disturbance, increased fire risk, contamination and damage (for general reviews see: Liley, Lake, et al., 2010; Lowen, Liley, Underhill-Day, & Whitehouse, 2008; Ross et al., 2014; J. C. Underhill-Day, 2005).
- 7.5 The issues are not however straightforward. It is now increasingly recognised that access to the countryside is crucial to the long term success of nature conservation projects, for example through enforcing pro-environmental behaviours and a greater respect for the world around us (Richardson, Cormack, McRobert, & Underhill, 2016). Access also brings wider benefits to society that include benefits to mental/physical health (Keniger, Gaston, Irvine, & Fuller, 2013; Lee & Maheswaran, 2011; Pretty et al., 2005) and economic benefits (ICF GHK, 2013; ICRT, 2011; Keniger et al., 2013; The Land Trust, 2018). Nature conservation bodies are trying to encourage people to spend more time outside and government policy is also promoting countryside access in general (e.g. through enhancing coastal access).
- 7.6 Recreation on heathland sites is addressed in a separate section of the appropriate assessment which also includes urban effects and is focussed on the heaths. This is because the strategic mitigation approach involves both urban effects and recreation. In this section of the appropriate assessment, issues from recreation at the coastal sites and at Poole Harbour are addressed.

Coastal SAC sites and recreation

- 7.7 The HRA for the PLP1 indicated that the new housing and new tourist accommodation, if implemented without mitigation measures, could result in an adverse effect upon the integrity of the Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC, the Isle of Portland to Studland Cliffs SAC and the St Alban's Head to Durlston Head SAC. Development in Swanage is likely to have the greatest impact, but development within much of the area may contribute to the numbers of people visiting the coast.
- 7.8 Whilst some of the impacts (such as trampling and eutrophication) are similar for coastal habitats and heathland ones, the impact of new local housing on coastal sites is less. This is because the interest features are less vulnerable, for example the sites are not SPA sites and do not support ground-nesting birds susceptible to disturbance. The impacts from increased housing are potentially 'diluted' in that the coastal sites are heavily visited by tourists, and receive many more visitors than, for example, the heaths. Furthermore, there is significant infrastructure in place at many coastal sites to manage the recreation, for example the National Trust at Studland have sections of dunes fenced off to protect from trampling; at Durlston Country Park there is a visitor

centre with a ranger team, education facilities and marked routes. Further east along the coast, the National Trust have introduced a permit scheme for organised groups (coasteering etc.) and there have been changes to the parking – for example parking charges at Langton and other changes to the parking infrastructure.

- 7.9 The HRA for the PLP1 discussed the issues in considerable detail and suggested that the impacts of additional pressures on the dune and calcareous grassland SACs arising purely from recreational increase associated with local development may be slight or undetectable, in the context of considerable existing pressure and the infrastructure in place to manage it. This is clearly very different to the impacts on the heaths, where there is considerable evidence of recreation impacts and urban effects. As such a proportionate approach is necessary for coastal sites and recreation issues, involving a partnership approach whereby monitoring ensures that if any issues occur (and these will be localised) they can be resolved through additional ranger presence, path diversions, dog bins etc. Such an approach provides the confidence that adverse effects on integrity can be ruled out and was recommended in the HRA work at PLP1. This partnership approach is also identified within the relevant site improvement plan³¹.
- 7.10 The main sites for housing identified within the Purbeck Local Plan at Main Modifications are all set back from the coast and are well inland. At early stages of the review, emerging options included sites much closer to the coast, for example at Langton Matravers, and these would have meant greater risks to coastal sites. Given the distribution of housing sites in the Local Plan at Main Modifications, visits to coastal sites from new residents are likely to be more occasional and spread out at a range of different parts of the coast (as opposed, for example, to a regular daily dog walk). As such the risks particularly relate to the overall quantum of growth.
- 7.11 Monitoring to date has included:
- SSSI condition monitoring undertaken by Natural England;
 - Automated counters recording visitor numbers at Durlston Country Park;
 - Some recording of visitors around the cliffs, caves and ledges (climbing, coasteering etc) as part of annual boat-based seabird monitoring by the National Trust.
- 7.12 Checks with Natural England (in July 2019) of condition assessment monitoring undertaken and relevant issues show that the only identified issues from trampling are within Unit 45 of the Isle of Portland SSSI (Isle of Portland to Studland Cliffs SAC). This is at Portland Bill, well outside Purbeck and is a tourist hot spot. Here vegetation restoration works have been put in place over a number of years and monitoring

³¹ See <http://publications.naturalengland.org.uk/publication/6737802813243392>

shows the vegetation to be recovering. Monitoring within Purbeck, at the sites likely to be regularly visited by Purbeck residents, has not as yet shown similar impacts.

- 7.13 The supplementary conservation objectives for the St Albans Head to Durlston SAC include a target to control and minimise human access to the cliffs. The supporting text suggests that at some locations access for mountaineering and coasteering may to the cliffs may have reached a level where negative impacts may be occurring. Such recreation use is tourist related rather than that which might be generated by housing growth in Purbeck.
- 7.14 Given the current condition and active management of the SAC, and the location and level of proposed residential development, there is no immediate need for active mitigation. It is essential though that the Council keep a watching brief on coastal sites and recreation issues. At this stage, the monitoring approach for the coastal sites is therefore considered to be proportionate and appropriate and is supported by Natural England. This should involve regular checks with the National Trust, Natural England and the ranger team at Durlston to identify any concerns from local use and to ensure any emerging issues are addressed promptly.

Poole Harbour and Recreation

- 7.15 Disturbance has been identified by Natural England as a generic issue across many SPAs (see Coyle & Wiggins, 2010), and can be an issue for a range of species.
- 7.16 Disturbance to wintering and passage waterfowl can result in:
- A reduction in the time spent feeding due to repeated flushing/increased vigilance (Bright, Reynolds, Innes, & Waas, 2003; Fitzpatrick & Bouchez, 1998; Stillman & Goss-Custard, 2002; Thomas, Kvitek, & Bretz, 2003; Yasué, 2005)
 - Increased energetic costs (Nolet, Bevan, Klaassen, Langevoord, & Van der Heijden, 2002; Stock & Hofeditz, 1997)
 - Avoidance of areas of otherwise suitable habitat, potentially using poorer quality feeding/roosting sites instead (N. H. K. Burton, Armitage, Musgrove, & Rehfish, 2002; N. H. Burton, Rehfish, & Clark, 2002; Cryer, Linley, Ward, Stratford, & Randerson, 1987; Gill, 1996)
 - Increased stress (Regel & Putz, 1997; Thiel, Jenni-Eiermann, Palme, & Jenni, 2011; Walker, Dee Boersma, & Wingfield, 2006; Weimerskirch et al., 2002).
- 7.17 Disturbance can have additional impacts for breeding birds and for breeding gulls and terns, impacts of recreation can include reduced breeding success (Medeiros et al., 2007; Robert & Ralph, 1975; Sandvik H & Barrett, 2001).
- 7.18 Since the HRA of the PLP1, additional evidence of the impacts of disturbance to Poole Harbour SPA has become available. A detailed disturbance study of the SPA (Liley & Fearnley, 2012), commissioned by Natural England, involved detailed observation work

on the response of birds at 15 survey points and also included paired counts of birds at particular locations during the day and during the night, to determine whether areas with low numbers of birds during the day may be utilised by the birds more at night (when levels of disturbance from recreational activity are potentially less).

- 7.19 Liley & Fearnley's report shows that disturbance had a significant, negative effect on the number of waders and the number of wildfowl present at the survey points, indicating that birds respond to disturbance levels and redistribute as a result of disturbance. The 2012 study was repeated over the winter 2019/20 (Saunders & Liley, 2020 in prep) and the results suggest a marked increase in recreational use since the previous study and consequently increased pressure from recreation on Poole Harbour's wintering bird interest. The increase in use in certain activities, such as dog walking, walking, and jogging, are likely linked to increases in the local population (as well as reflecting current national trends in access to the countryside).
- 7.20 The HRA for the PLP1 (Liley & Tyldesley, 2011) recommended a range of mitigation measures necessary to mitigate for recreation at Poole Harbour (see 6.16-6.26).
- 7.21 The Purbeck Local Plan at Main Modifications stage now sets out in detail a commitment to delivering mitigation for recreation impacts on Poole Harbour, in Policy E9 and the supporting text. The mitigation approach is set out in an SPD, adopted by Dorset Council in March 2020. The SPD is fully supported by Natural England and is informed by a comprehensive evidence base that includes visitor monitoring, bird survey work and disturbance studies. It sets out a strategy under which planning applications for residential development can be determined and avoid adverse effects on the integrity of Poole Harbour.
- 7.22 Mitigation is necessary for all new residential development within the Poole Harbour Recreation Zone (identified in the SPD). The mitigation will be provided through Poole Harbour Infrastructure Projects (PHIPs) and Strategic, Access Management and Monitoring (SAMM). In the Dorset Council area, both PHIPs and SAMMs will usually be secured through the payment of Community Infrastructure Levy (CIL).

Conclusions: Recreation at non-heathland sites

- 7.23 Adverse effects on integrity for coastal sites (Isle of Portland to Studland Cliffs SAC, St. Albans to Durlston Head SAC) from recreation are ruled out, alone or in-combination given the scale and distribution of growth, the relevant site interest, monitoring results and the existing infrastructure in-place at the coastal sites. In addition, the Dorset Council will keep a 'watching brief', as a back-up to further remove uncertainty. Any small sites that come forward close to the coast will need to address recreation issues as part of the project level HRA, for example through the provision of dog bins, contribution to wardening or path infrastructure.

7.24 For Poole Harbour a strategic mitigation approach is now established and adopted as an SPD. As such, adverse effects on integrity for Poole Harbour SPA/Ramsar can be ruled out alone or in-combination.

8. Appropriate assessment: Water quality

8.1 Screening identified likely significant effects for the following policies alone:

- V1 – Spatial strategy for sustainable communities (Poole Harbour SPA/Ramsar);
- H1 – Local housing requirement (Poole Harbour SPA/Ramsar);
- H2 – The housing land supply (Poole Harbour SPA/Ramsar).

8.2 Screening identified likely significant effects for the following policies in-combination with other elements of plan and other plans/projects:

- H4 – Moreton Station/Redbridge Pit (Poole Harbour SPA/Ramsar);
- H5 – Wool (Poole Harbour SPA/Ramsar);
- H6 – Lytchett Matravers (Poole Harbour SPA/Ramsar);
- H7 – Upton (Poole Harbour SPA/Ramsar);
- H8 – Small sites next to existing settlements (Poole Harbour SPA/Ramsar);
- EE1 – Employment land supply (Poole Harbour SPA/Ramsar);
- I5 – Morden Park SANG and holiday park (Poole Harbour SPA/Ramsar).

Poole Harbour and Nutrients

8.3 There are existing issues relating to nutrient levels in treated waste water entering Poole Harbour. The issues were raised in the Local Plan Habitats Regulations Assessment (Liley & Tyldesley, 2011).

8.4 Poole Harbour is classified as an SPA and listed as a Ramsar site for its bird interest, and the Ramsar listing also includes criteria relating to its estuarine habitats, coastal habitats and rare flora and invertebrates. Nutrient enrichment of the harbour causes a number of ecological concerns, but most notably it is the resultant algal mats that form on the mudflats, fed by the high levels of nutrients, that have detrimental effects on the availability of mudflat dwelling invertebrates for the waterfowl that form interest features of the SPA and Ramsar site. The algal mats affect the density and diversity of invertebrates, and reduced quality and quantity of food will in turn affect the rigor of the SPA birds and therefore potentially affect the ecological integrity of SPA populations.

8.5 In 2013 the Environment Agency and Natural England prepared a nutrient management plan entitled “Strategy for Managing Nitrogen in the Poole Harbour Catchment To 2035” (Bryan & Kite, 2013). The Strategy proposes two approaches to meeting the target of no net increase: firstly, that the Environment Agency and Natural England work with the agriculture sector within the Poole Harbour catchment; and that the four councils within the catchment of Poole Harbour work together to create an Implementation Plan to mitigate the impact of additional development on Poole

Harbour through additional nitrogen load. The aim of this Strategy is to ensure that the requirements of the Habitat Regulations are met such that overall a 25% reduction in Nitrogen entering Poole Harbour is achieved by 2035. This reduction will be achieved through land-use change in the agricultural area of the catchment. For development activity such as planned for Poole Borough, the Strategy aims to ensure that there is no net increase in Nitrogen load entering the Harbour from terrestrial sources.

- 8.6 In seeking a solution to the issue, the former Purbeck District Council and the former Borough of Poole have worked closely with Natural England and the Environment Agency to produce an SPD setting out a nitrogen neutrality approach to new growth. The Nitrogen Reduction in Poole Harbour SPD³² was adopted in 2017. It is a mechanism to ensure that new growth does not result in any increased discharge of nutrients into the harbour and demands nitrogen neutrality for every new development in order to achieve this. The SPD is part of the suite of planning policy documents for Purbeck.
- 8.7 The Nitrogen Neutrality concept is based on a recognition that nitrates entering the harbour have originated from a range of sources. According to Natural England and the Environment Agency research, waste water is a significant issue (15%), but run off from agricultural land is thought to be the biggest contributing factor (85%). Waste Water Treatment Works (WWTW) discharging into Poole Harbour are required to remove 75% of nitrate, under the Urban Wastewater Treatment Directive. In practice treatment removes all but 7mg/l of nitrate using a nitrate stripping facility. This process is already relatively expensive; and would require additional and permanent investment to address increases in volume of effluent entering the STW, resulting from new development. In attempting to mitigate for the nitrates entering the harbour from the waste water sources, another option is to prevent the impact by removing an equivalent level of nitrates from other sources, i.e. Nitrogen Offsetting.

Securing mitigation for nutrient enrichment within Purbeck.

- 8.8 The Nitrogen Reduction in Poole Harbour SPD sets out the required volume of nitrates for removal from the catchment, based on the predicted growth within the four local planning authority areas. It recognises that land will come out of agricultural production for a number of reasons over the plan period, and calculates the reduction in nitrates that will occur as a result. The remaining shortfall to offset predicted growth is therefore the volume that must be met with developer funding from housing developments.

³² [https://www.dorsetforyou.gov.uk/media/221531/Nitrogen-Reduction-in-Poole-Harbour-SPD-Adopted/pdf/Nitrogen Reduction in Poole Harbour-SPD-adopted.pdf](https://www.dorsetforyou.gov.uk/media/221531/Nitrogen-Reduction-in-Poole-Harbour-SPD-Adopted/pdf/Nitrogen%20Reduction%20in%20Poole%20Harbour-SPD-adopted.pdf)

Plan review requirements for Poole Harbour nutrients

- 8.9 As previous HRA work by both Purbeck and Poole Councils fully covers the issue of nutrient enrichment at Poole Harbour, this is not repeated here. The new Purbeck Local Plan at Main Modifications incorporates policy wording to ensure mitigation for nutrients in Poole Harbour and the SPD is referred to in the supporting text.
- 8.10 The SPD already notes an urgent need for significant areas of agricultural land to be taken out of production in order to mitigate for current growth.

Conclusions: Water Quality

- 8.11 A mitigation strategy for nitrogen and Poole Harbour is established and adopted as an SPD. As such, adverse effects on integrity can be ruled out both alone or in-combination, as the SPD ensures overall nitrogen neutrality for each development. In implementing policy E9 (which relates to nutrients and Poole Harbour), it is advised that Dorset Council should look at the SPD requirements in a strategic way across the area. Early engagement with landowners to identify potential land that could be taken out of intensive agricultural production to meet the plan area wide mitigation need could prevent delays in the development management process.

9. Appropriate assessment: Air quality

9.1 Screening identified likely significant effects for the following policies alone:

- V1 – Spatial strategy for sustainable communities (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar);
- H1 – Local housing requirement (Dorset Heaths SACs/SPA/Ramsar; Poole Harbour SPA/Ramsar);
- H2 – The housing land supply (Dorset Heaths SACs/SPA/Ramsar; Poole Harbour SPA/Ramsar).

9.2 Screening identified likely significant effects for the following policies in-combination with other elements of plan and other plans/projects:

- H4 – Moreton Station/Redbridge Pit (Dorset Heaths SACs/SPA/Ramsar; Poole Harbour SPA/Ramsar);
- H5 – Wool (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar);
- H6 – Lytchett Matravers (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar);
- H7 – Upton (Poole Harbour SPA/Ramsar);
- H8 – Small sites next to existing settlements (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar);
- EE1 – Employment land supply (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar);
- I5 – Morden Park SANG and holiday park (Dorset Heaths SACs/SPA/Ramsar, Poole Harbour SPA/Ramsar).

Introduction

9.3 Increased growth within Local Plans is of relevance to HRAs where increased traffic volumes as a result of new growth will occur in close proximity to European sites hosting habitats that are sensitive to reduced air quality.

9.4 Historically, HRA consideration of air quality from traffic emissions has predominantly relied upon the advice given within the Design Manual for Roads and Bridges (DMRB)³³, a Highways England publication that provides the national standards for road and bridge design, construction and operation, including assessment of impacts.

9.5 A recent and highly relevant judgment from the domestic courts, known as ‘the Wealden Judgment’, together with a number of European cases and a range of new evidence, advice and guidance to inform HRA assessments in relation to air quality,

³³ See [LA 105 air quality](#), issued Nov 2019

provides clear reasons for ensuring that this HRA is prepared with full regard for current information, whilst still having regard for the DMRB advice.

Summary of atmospheric pollution

- 9.6 Atmospheric pollutants of concern to sensitive habitats that are derived from vehicles include oxides of nitrogen (NO_x), ammonia (NH₃) and the consequential deposition of nitrogen (N) and acid, which can then lead to changes in species composition and mortality.
- 9.7 It is known that traffic emissions lead to an increase in N, and that this presents a major concern for sensitive habitats. Critical thresholds, beyond which plant communities may change in response to pollutants, have been developed for a range of habitat types, and are available from the [Air Pollution Information Service](#) (APIS). This database is funded and provided by the Centre for Ecology and Hydrology and the UK pollution and conservation agencies including Natural Resources Wales (NRW), the Environment Agency, Northern Ireland Environment Agency, Natural England, the Joint Nature Conservation Committee (JNCC), Scotland and Northern Ireland Forum for Environmental Research (SNIFFER), the Scottish Environment Protection Agency (SEPA), and Scottish Natural Heritage (SNH).
- 9.8 APIS holds data and threshold information specifically in relation to habitat sensitivity rather than human health. Summary information of relevance is given in Table 8.

Table 8: Summary of key air pollutants

Pollutant	Source	National trend	Impact
NO _x	Combustion, mainly vehicles and power stations	Decline (55% since 1986)	Mainly through N deposition, but also gaseous NO _x close to source. Synergy with SO ₂
NH ₃	Natural and anthropogenic; main source is agriculture	Smaller decline which has now flattened	Direct toxicity and N-accumulation

- 9.9 The main impacts of NO_x and NH₃ are through N deposition and acidification. N deposition can lead to an increase in N loving species at the expense of other species; an increased risk of frost damage in spring, increased sensitivity to drought; increased incidence of pest and pathogen attack and direct damage to sensitive species. The impacts of acid deposition are often indirect, resulting from a change of pH in soils and water. Chemical changes lead to nutrient deficiencies, release of toxins and changes in microbial N transformations.

- 9.10 The implications of the Purbeck Local Plan in relation to air quality need to be assessed against background trends and the trajectory of vehicle emission improvements. Assessment of improvements in vehicular technology and in particular Euro6/VI standards that all vehicles are currently being manufactured to, may outweigh impacts from new development. The improvements may be retarded by additional development, but future background levels of nitrogen are expected to decline with Government clean air strategies.

Recent case decisions and guidance

- 9.11 The Purbeck Local Plan is being assessed with the benefit of a number of recent case decisions that provide an interpretation of the application of the Habitats Regulations and its parent European Directives in relation to air pollution. These are discussed here to highlight their relevance to appropriate assessment.

Guidance on assessing air quality impacts for designated sites

- 9.12 The Design Manual for Roads and Bridges (DMRB) has been the standard source of guidance for considering traffic generated air quality impacts. The latest DMRB has a specific section (LA105) on air quality, and this highlights the potential for impacts on sensitive habitats within 200m of a road, and the need for further assessment where changes to the road network or traffic volumes might increase daily traffic flows by 1,000 Average Annual Daily Traffic (AADT) or more. This is a simple measurement of change, using the total volume of traffic on a road and dividing it by 365 days to give a daily average.
- 9.13 Natural England and its partner UK statutory nature conservation bodies have a specialist air quality technical group known as the Air Quality Technical Advisory Group (AQTAG). This group regularly meets to discuss key issues in relation to air quality concerns for designated sites and will occasionally issue formal advice notes on key topics. AQTAG21 is an advice note that includes reference to a 1% threshold to be used in air quality assessments. This threshold has been consistently used by the statutory nature conservation bodies over a number of years to indicate where an increase in atmospheric pollutant might be deemed significant. The AQTAG21 refers to a 1% threshold in terms of the relevant critical load for the habitat type. Where the pollutant contribution is less than 1% of the critical load, it is deemed to be inconsequential (*de minimis*) and does not warrant further consideration for likely significant effects.
- 9.14 The Institute of Air Quality Management published guidance in June 2019 entitled 'A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites'.
- 9.15 This guidance contains detailed and relevant advice in relation to the assessment of traffic generated air quality impacts and highlights the 1% threshold as a widely used

threshold, below which fluctuations are not likely to be discernible from background fluctuations/measurements, and above which a need for further assessment is identified but does not automatically imply damage will occur.

The Wealden Judgment

- 9.16 Use of the DMRB and AQTAG21 for the purposes of assessing air quality within a plan level HRA was scrutinised through a High Court Judgment³⁴ whereby Wealden District Council challenged the HRA conclusions of the Joint Core Strategy (JCS) for Lewes District and South Downs National Park. Whilst the HRA had made conclusions of no likely significant effect on the basis of growth within the JCS alone, the High Court found that the HRA had failed to consider the combined effect of growth within multiple Local Plans in the vicinity of Ashdown Forest, thus necessitating an appropriate assessment. Natural England's advice given at the time deemed both the DMRB 1000AADT and the 1% of the critical load to be thresholds below which further assessment was not required. The Judgment relies on the caveat set out within AQTAG21, which advises that if there was to be a concentration of plans or projects in the same area, at the same time, then there may be cause for case specific assessment and the 1% threshold may not automatically apply.
- 9.17 In light of this case it is important therefore for any HRA to refer to a range of evidence and advice when considering air quality impacts and the DMRB thresholds, the AQTAG21 advice and the findings of the High Court in the Wealden case should be considered together, alongside any other relevant research and evidence.

European Court - Joined Cases C-293/17 and C-294/17

- 9.18 Coöperatie Mobilisation (Joined Cases C-293/17 and C-294/17) are now being generally referred to as "the Dutch Case" for nitrogen deposition. This Netherlands co-joined case brought before the European Court is an important recent case in the interpretation of the European Directives for plans and projects with potential air pollution impacts. The case focusses on agricultural derived nitrogen deposition, and essentially questions whether it is appropriate to rely on strategic measures to alleviate air pollution that may create capacity for individual projects to be approved despite their individual contribution of additional pollutants.
- 9.19 The European Court Judgment focusses on the fact that where a European site is already deteriorating, projects that then worsen the situation should not be approved, unless there are clear and definitive measures underway to restore the situation and maintain favourable conservation status. The Netherlands Government has an approach that relies upon a programme of nitrogen reduction measures. What is key

³⁴ ³⁴ *Wealden v SSCLG (2017)*

to the assessment of traffic increases relating to Local Plans, and indeed the assessment of any other potential impacts at the plan level, is that the European Court was clear that measures should not be relied upon if they are uncertain, have not yet been carried out, are not certain to take place, or have poor scientific basis.

- 9.20 The case therefore highlights the need to have certainty in any measures being relied upon to allow a conclusion of no adverse effects where they are expected but not yet completed. Importantly, any such measures need to be scientifically certain and secured (in terms of responsibility, finances, practical delivery etc.), rather than just forecasts.

Natural England Guidance

- 9.21 With growing interest from competent authorities in the correct approach to assessing air quality impacts following recent court cases, Natural England has been assisting local planning authorities across the country with advice on what should be considered within an HRA. Natural England has a number of research reports available within its publications webpage.
- 9.22 Caporn et al (2016) highlights that the majority of designated sites in the UK are currently exceeding their critical loads for N deposition, and this is leading to significant changes in these sensitive habitats as a consequence. There are particular concerns in relation to lower plants, which are highly sensitive to N deposition.
- 9.23 Although habitat responses to N deposition are not fully understood, it is apparent that the relationship between increased pollutants and habitat deterioration (declines in species richness and species composition) is not linear. Critical loads identify a point at which significant vegetation change is likely to occur, but changes do not continue on a linear basis beyond the critical threshold.
- 9.24 Natural England's (2018) guidance on their approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations makes it clear that it is for the competent authority, not Natural England, to acquire enough evidence to support its HRA conclusions. Helpfully, the document highlights that the 1% threshold can be used to establish whether further assessment is necessary, but should not be used to determine whether an adverse effect can or cannot be ruled out.
- 9.25 Importantly, this document indicates that traffic management measures and habitat management measures or interventions that limit the dispersal of traffic emissions might constitute mitigation measures. It is concluded that whilst these measures alone do not enable a conclusion of no adverse effect as the extent of their effectiveness is not yet quantified, they can be considered as additional measures that positively support such a conclusion.

Roads and European sites in Purbeck

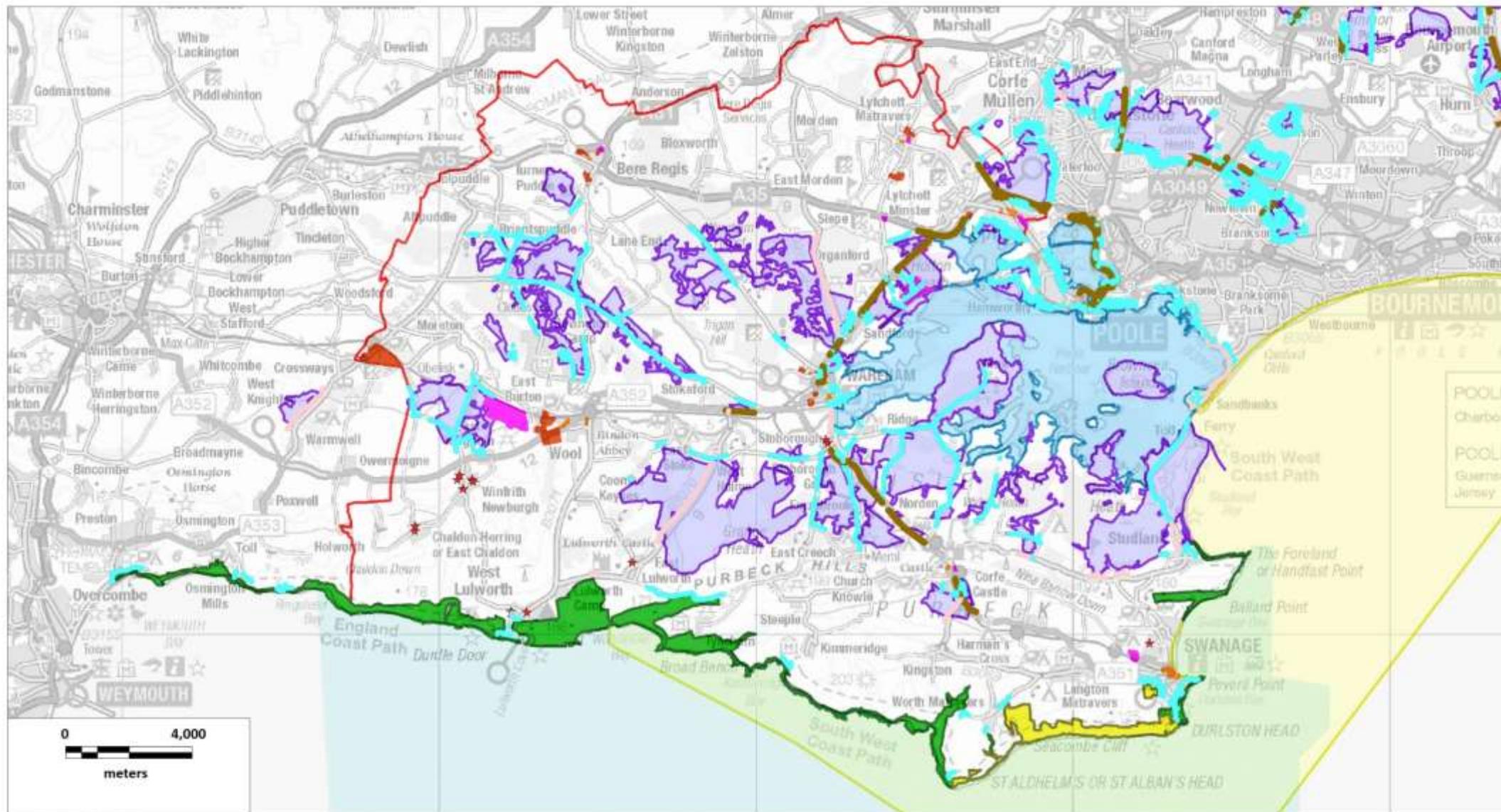
- 9.26 In Map 8 we show European sites, housing sites and any roads that are within 200m of European sites. Roads within 200m of European sites are shaded to reflect the road type, with A roads shown as thick dark brown lines, B roads are paler brown and unclassified roads are shown in light blue.
- 9.27 From this map, the relevant European sites crossed by A roads are:
- A35, between Bakers Arms and Poole (Dorset Heaths SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar, Poole Harbour SPA/Ramsar);
 - A358, near Upton Heath (Dorset Heaths SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar);
 - A351, between Stoborough and Corfe Castle (Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar);
 - A351, between Wareham and the Bakers Arms roundabout, (Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC, Dorset Heaths SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar);
 - A351 south of Corfe Castle through Corfe Common (Dorset Heaths SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar);
 - A352, to the west of Wareham adjacent to Worgret Heath (Dorset Heaths SAC, Dorset Heathlands SPA, Dorset Heathlands Ramsar).
- 9.28 Natural England's site improvement plan for both the Dorset Heaths³⁵ and Poole Harbour³⁶ identifies air pollution and the impact of atmospheric nitrogen deposition as a current pressure. For the Dorset Heaths action to control, reduce and ameliorate atmospheric nitrogen impacts is set out as a necessary measure in the plan, with Natural England as the lead delivery partner. For Poole Harbour the plan identifies aerial nitrogen as part of the overall nitrogen pressure on the SPA, the majority of which comes from agriculture. Nitrogen deposition occurs in the wider catchment and is conveyed to Poole Harbour by water, either through surface drainage or groundwater. Bryan & Kite (2013) suggest less than 5% of the nitrogen entering Poole Harbour comes from atmospheric sources, with the majority (over 50%) from agriculture. As such, Nitrogen issues for Poole Harbour are addressed through the Poole Harbour Nitrogen Strategy (see para 8.5 and 8.6).
- 9.29 The supplementary conservation objectives for the Dorset Heaths SACs include air quality and the targets are to maintain as necessary, the concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System. For certain

³⁵ See relevant page on the [Natural England website](#)

³⁶ See relevant page on the [Natural England website](#)

habitats such as the wet heathland habitats, dry heath and depressions on peat substrates the targets are to restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values. The supplementary conservation objectives also recognise that achieving the air quality targets may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.

Map 8: Roads within 200m of European Sites



European sites

- Dorset Heaths (SAC/SPA)
- Isle of Portland to Studland Cliffs SAC
- Poole Harbour (SPA/Ramsar)

- Solent and Dorset Coast SPA
- St Albans Head to Durlston Head SAC
- Studland to Portland SAC

Local Plan Sites

- Housing (H2)
- Employment
- Retail
- Potentially suitable small housing sites

Purbeck District

Roads within 200m of European sites

- A Road
- B Road
- Unclassified

Contains Ordnance Survey data. © Crown copyright and database right 2020.
 Designated site boundaries downloaded from the Natural England website. © Natural England.
 Details of local plan sites provided by Dorset Council.

Predictions of traffic flows

- 9.30 Various studies have modelled traffic flows in Purbeck, these include studies focussing on specific development locations and more strategic studies focussing on the whole road network. These have largely been based on much higher housing numbers than are included in the Purbeck Local Plan at Main Modifications.
- 9.31 Dorset County Council modelling of road traffic across the Purbeck area are summarised by Channer (2016b). Modelling tested 2 scenarios, A and B, which both involved over 3000 additional homes across Purbeck. Option A focussed on maximising housing in south-west Purbeck while option B had development more focussed towards the conurbation. Both scenarios represent many more houses than are included in the Purbeck Local Plan at Main Modifications. The two scenarios are compared to a 'Do Minimum' scenario that includes the growth and developments in PLP1 and additional growth through to 2033.
- 9.32 The modelling showed, for the overall modelled road network an increase of 1100 – 1200 total trips per hour at the morning peak, when A or B were compared to the do minimum scenario. These totals represent all roads in the modelled area and all trips, in various directions. The scale of growth in the Purbeck Local Plan at Main Modifications is lower, and the main locations for development, towards the west will mean much of the traffic flow will be westwards, towards Dorchester. As such increases on any one road section as a result of the various developments alone, or the overall quantum of growth in the Local Plan will be low and are likely to be well under 1000ADT.
- 9.33 More site- focussed work provides further checks. Dorset County Council undertook specific traffic modelling work for the Moreton Crossways area in 2016 (Channer, 2016a). In this work modelling scenario 2 Included 640 residential units identified at Crossways and around 500 dwellings at Moreton provided through the Purbeck Local Plan review. This was compared to baseline growth in traffic with predictions made for 2031. There are plots showing hourly traffic flows for different road stretches and summary figures for the network as a whole. The results confirm that any increases in traffic flows will be under 1000ADT for any particular road stretch. This modelling included quarry traffic (i.e. associated with the waste and mineral plan) and traffic increases associated with development in West Dorset and also shows data from the interpeak period (i.e. through the day), providing clear indications of potential overall traffic changes.
- 9.34 As such, the scale of development and the spatial distribution of proposed growth indicate that traffic increases will be relatively slight. The main locations for growth, at Redbridge and Wool will mean much of the traffic will be towards Dorchester or northwards, avoiding some of the key areas of concern such as the areas around Wareham and to the south of Wareham. These increases need to be considered in

context with the phasing out of combustion engines and the growing trend for low emission vehicles and electric cars, which will mean that air quality is likely to continue to improve. While such changes should not be relied on, they do provide important context. The Purbeck Local Plan at Main Modifications also includes a range of measures that promote sustainable forms of transport, for example in H3 through encouraging the provision of charging points for electric vehicles and requiring transport plans to promote sustainable transport.

- 9.35 There is also much current uncertainty that makes effective predictions difficult. Air quality has improved markedly with COVID 19, due to the lack of vehicle traffic. Brexit, future climate change actions and COVID 19 will influence the way the economy functions, short-term government priorities and as a result changes in air quality.
- 9.36 The overall scale of growth, the locations of the growth and the traffic modelling indicate that, for the quantum of growth in the Purbeck Local Plan at Main Modifications, adverse effects on integrity for the Dorset Heaths SACs/SPA/Ramsar and Poole Harbour SPA/Ramsar in relation to air quality can be ruled out alone.
- 9.37 In-combination is more challenging. It is clear from Map 8 that growth outside Purbeck, particularly in the BCP area will be relevant to any in-combination assessment. At present the necessary modelling results are not available. With annual growth of 180 dwellings for Purbeck and that growth focussed to the west of the Plan area, risks to European sites are low. Current uncertainties, for example relating to COVID, and the more strategic issues with air quality relating to trends in electric vehicles and growth outside Purbeck, mean further clarity is difficult at the moment.
- 9.38 Working with BCP Council, Dorset Council is working on an interim strategy to address the deterioration of the Dorset Heathlands designated sites from air quality impacts. This interim air quality mitigation strategy will set out an agreed approach by the two Councils and Natural England. It will contain a series of short-term projects for the period 2020-2025 to counteract air quality pollution. These projects will be carefully chosen to create a 'buffer', front-loading mitigation to ensure there is capacity to allow short-term growth. The strategy will set out how measures will be achieved and funded, possibly including a dedicated project co-ordinator to ensure delivery. Monitoring of the impact of the measures taken will be carried out, to allow interventions to be targeted where impacts occur.
- 9.39 The new local authority and a new Dorset Plan in 2024 provide an opportunity to review air quality impacts and the European sites, with the evidence gathering informing the HRA work for that Plan. BCP have received significant funding through the Transforming Cities Fund which will target sustainable transport working in partnership with DC. The BCP Local Plan will be tracking along the same timescale as the Dorset Plan. This will provide potential for further co-operation between with Councils and more comprehensive traffic and air quality modelling, taking into account

changing vehicle emissions and testing the effects of different traffic scenarios in relation to the critical loads of the relevant European sites.

- 9.40 It is expected that the interim air quality mitigation strategy will expand as necessary, based on the findings of further modelling work and to fit the new Dorset Plan. Expansion of the strategy will allow it to include more detail on medium to longer term measures and be established as a supplementary planning document (SPD). The measures will be needed until air pollution levels return to an acceptable level and favourable status of the Dorset Heathlands is achieved. By 2035 (or earlier), when government policy on vehicle emissions will bite through a change to electric vehicles, it may be possible for measures to be reduced or stopped, informed by relevant modelling. Modifications to the plan cross-reference to the interim strategy and, as necessary, the need for a longer-term approach.
- 9.41 The proposed interim air quality mitigation strategy therefore provides confidence that adverse effects on integrity will be able to be ruled out in-combination and ensures there is a clear way forward to address the challenges from cumulative impacts of air quality on the Dorset Heaths SAC/SPA/Ramsar.

Conclusions: Air Quality

- 9.42 With annual growth of 180 dwellings and that growth focussed to the west of the Purbeck area, risks to European sites are low. Traffic modelling indicates that, for the quantum of growth in the Purbeck Local Plan at Main Modifications, adverse effects on integrity for the Dorset Heaths SACs/SPA/Ramsar and Poole Harbour SPA/Ramsar in relation to air quality can be ruled out alone.
- 9.43 Given the scale of traffic increases and locations for growth, plus a developing interim strategy to address air quality impacts to the Dorset Heathlands, in-combination effects can also be eliminated for the short-term. This conclusion has been checked with Natural England.
- 9.44 With the uncertainties relating to COVID 19 and Brexit, and the longer term implications for air quality difficult to forecast, detailed review and modelling will be necessary in the near future, by which time the picture for air quality trends nationally should be clearer. The interim air quality mitigation strategy can be expanded as necessary to address the cumulative impacts of development on air quality as part of the new Dorset Council Local Plan supported by additional evidence such as traffic modelling and air quality monitoring. This conclusion has also been checked with Natural England.

10. Conclusions

- 10.1 This HRA has assessed the implications for European sites of the Purbeck Local Plan at Main Modifications at both screening for likely significant effects and appropriate assessment stage. The screening for likely significant effects screened all housing and employment allocations as likely to have a significant effect on European sites due to their proximity to the European sites and the need for effective mitigation in line with the established strategic approaches for the heaths and Poole Harbour. The appropriate assessment sections have concluded that the mitigation adequately provides protection of the European sites, but that there remain some risks that should be resolved at the development project HRA level.
- 10.2 Of particular relevance within the HRA findings in this report is the need to ensure that heathland mitigation packages for each allocation fit with the local site circumstances and risks. SANGs provision is critical to securing the necessary mitigation to prevent adverse effects on the European sites in terms of recreation pressure. It is understood that Natural England has been advising the Council since those proposals were published in 2016, and that there is now a good level of progression with SANGS to be able to conclude that the allocations have viable options for SANGS mitigation.
- 10.3 Currently, it is concluded that the Purbeck Local Plan at Main Modifications is in conformity with the Habitats Regulations, and at a plan level a conclusion of no adverse effects on European site integrity can be drawn. The HRA provides recommendations for the development project level, and continued progression of strategic mitigation measures. This report should therefore be regularly referred to after the local plan is adopted. We highlight the following future work areas or further considerations:
1. **Dorset Heaths mitigation:** The current SPD runs until 2025 and this provides an opportunity for review. Both Dorset Council and BCP Council are preparing new local plans for the two Council areas and these will replace the six current local plans. The process will review the different approaches in order to provide consistent advice in future iterations of the SPD. The review should include analysis of visitor data, housing data and mitigation delivery to identify gaps in HIPs provision, checking on potential capacity, the relative visitor catchments of HIPs and opportunities for further mitigation. For example, by reviewing the strategic SANGs and smaller SANGs in place and their respective visitor catchments, future HIPs can be targeted. This will ensure any update to the SPD will deliver the right mitigation for the scale of growth proposed.
 2. **Fragmentation and mobile species:** for the employment sites at Holton Heath and the Dorset Innovation Park, given the proximity to European heathland sites, project level HRA should secure any detailed mitigation measures which may be required in the detailed site design.
 3. **Coastal recreation:** Monitoring results indicate no current concerns and there is already considerable infrastructure in place to manage visitors. As such adverse

effects on integrity from recreation can be ruled out, however the Dorset Council will keep a 'watching brief', for any emerging issues with recreation on coastal SACs. Any small sites that come forward close to the coast will need to address recreation issues as part of the project level HRA, for example through the provision of dog bins, contribution to wardening or path infrastructure.

4. **Poole Harbour and nutrients:** Early engagement with landowners to identify potential land that could be taken out of intensive agricultural production to meet the Plan wide mitigation need is recommended and could prevent delays in the development management process.
5. **Air quality:** The new local authority and a new Dorset Plan in 2024 provide an opportunity to review of air quality impacts and the European sites, with the evidence gathering informing the HRA work for that Plan. With the wider geographical responsibility of the new authority it will be possible to undertake comprehensive traffic and air quality modelling, taking into account changing vehicle emissions and testing the effects of different traffic scenarios in relation to the critical loads of the relevant European sites. The interim air quality mitigation strategy will need revision and updating as necessary, informed by the modelling.

11. References

- Allinson, E. (2018). *The role of suitable alternative natural greenspace in protecting high value wildlife sites* (PhD, Southampton). Southampton. Retrieved from <https://eprints.soton.ac.uk/427307/>
- Bright, A., Reynolds, G. R., Innes, J., & Waas, J. R. (2003). Effects of motorised boat passes on the time budgets of New Zealand dabchick, *Poliocephalus rufopectus*. *Wildl. Res.*, 30(3), 237–244.
- Bryan, G., & Kite, D. (2013). *Strategy for managing nitrogen in the Poole Harbour catchment to 2035*. Environment Agency and Natural England. Retrieved from Environment Agency and Natural England website: http://www.environment-agency.gov.uk/static/documents/Leisure/Strategy_for_Managing_Nitrogen_in_the_Poole_Harbour_Catchment_Final_06_06_13.pdf
- Burton, N. H. K., Armitage, M. J. S., Musgrove, A. J., & Rehfisch, M. M. (2002). Impacts of man-made landscape features on numbers of estuarine waterbirds at low tide. *Environ. Manage.*, 30(6), 857–864.
- Burton, N. H., Rehfisch, M. M., & Clark, N. A. (2002). Impacts of disturbance from construction work on the densities and feeding behavior of waterbirds using the intertidal mudflats of Cardiff Bay, UK. *Environ Manage*, 30(6), 865–871.
- Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., ... Stevens, C. (2016). *Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on seminatural habitats of conservation importance*. (No. NECR210).
- Channer, P. (2016a). *Moreton / Crossways / Woodsford – Traffic Impact Assessment 2016*. Dorset County Council. Retrieved from Dorset County Council website: <https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning-policy/purbeck/local-plan-review-purbeck/pdfs/sd102-moreton-crossways-transport-study-inter-peak-final.pdf>
- Channer, P. (2016b). *Purbeck Modelling Spatial Modelling Report*. Dorset County Council. Retrieved from Dorset County Council website: <https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning-policy/purbeck/local-plan-review-purbeck/pdfs/sd102-moreton-crossways-transport-study-inter-peak-final.pdf>
- Clarke, R. T., Liley, D., Underhill-Day, J. C., & Rose, R. J. (2006). *Visitor access patterns on the Dorset Heaths*. English Nature Research Report 683.
- Conway, G., Wotton, S., Henderson, I., Langston, R., Drewitt, A., & Currie, F. (2007). The status and distribution of breeding European Nightjars *Caprimulgus europaeus* in the UK in 2004. *Bird Study*, 54(1), 98–111.

- Coyle, M., & Wiggins, S. (2010). *European Marine Site Risk Review* (Natural England Research Report No. NERR038). Natural England.
- Cresswell, B. (1996). Nightjars - some aspects of their behaviour and conservation. *British Wildlife*, 7, 297–304.
- Cruickshanks, K., & Floyd, L. (2014). *Wild Purbeck NIA Visitor Survey Analysis Report*. Footprint Ecology/Wild Purbeck NIA.
- Cryer, M., Linley, N. W., Ward, R. M., Stratford, J. O., & Randerson, P. F. (1987). Disturbance of overwintering wildfowl by anglers at two reservoir sites in South Wales. *Bird Study*, 34(3), 191–199.
- David Tyldesley Associates. (2005). *Urban impacts on Dorset heaths. A review of authoritative planning and related decisions*. Peterborough.
- de Molenaar, H. (1998). *Convention on the Conservation of European Wildlife and Natural Habitats. On-the-spot appraisal of the Dorset heathland (United Kingdom). Report and Recommendations*. Strasbourg: Council of Europe.
- De Molinaar, H. J. G. (1998). *On-the-spot appraisal of the Dorset heathland, UK. Report and recommendations to the standing committee on The Convention on the Conservation of European Wildlife and Natural Habitats*. Strasbourg: Council of Europe.
- Defra. (2012a). *Habitats Directive Guidance on competent authority coordination under the Habitats Regulations*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69580/pb13809-habitats-guidance.pdf
- Defra. (2012b). *Report of the Habitats and Wild Birds Directives Implementation Review*. HM government.
- Dorset Council, & BCP Council. (2020). *The Dorset Heathlands Planning Framework 2020-2025 Supplementary Planning Document*. Retrieved from <https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning-policy/supplementary-planning-documents-and-guidance/all-of-dorset/dorset-heathlands-planning-framework-update/dorset-heathlands-2020-2025-spd-adopted.pdf>
- Fitzpatrick, S., & Bouchez, B. (1998). Effects of recreational disturbance on the foraging behaviour of waders on a rocky beach. *Bird Study*, 45(Pt2), 157–171.
- Gill, J. A. (1996). Habitat choice in wintering pink-footed geese: quantifying the constraints determining winter site use. *Journal of Applied Ecology*, 33, 884–892.
- Haskins, L. (2000). Heathlands in an urban setting - effects of urban development on heathlands of south-east Dorset. *British Wildlife*, 11(4), 229–237.

- Hoskin, R., Liley, D., & Underhill-Day J. (2018). *Poole Local Plan Habitats Regulations Assessment of the Modifications to the Pre-submission Draft* (No. 488). Footprint Ecology / Borough of Poole.
- ICF GHK. (2013). *The economic impact of Natural England's National Nature Reserves* (Natural England Commissioned Report No. NECR131).
- ICRT. (2011). *The Economic Potential of Nature Tourism in Eastern Yorkshire* (p. 61). Leeds. Retrieved from <http://mediafiles.thedms.co.uk/Publication/YS-EY/cms/pdf/YNT%20ICRT%20Report,%20Nature%20Tourism%20in%20Eastern%20Yorkshire.pdf>
- Ikediashi, C. (2015). *Population level variation of Atlantic Salmon in the chalk streams of Southern England and neighbouring regions* (PhD). University of Exeter.
- Ikediashi, C., Paris, J. R., King, R. A., Beaumont, W. R. C., Ibbotson, A., & Stevens, J. R. (2018). Atlantic salmon *Salmo salar* in the chalk streams of England are genetically unique. *Journal of Fish Biology*. Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/jfb.13538>
- Keniger, L. E., Gaston, K. J., Irvine, K. N., & Fuller, R. A. (2013). What are the Benefits of Interacting with Nature? *International Journal of Environmental Research and Public Health*, 10(3), 913–935. doi: 10.3390/ijerph10030913
- Kirby, J. S., & Tantram, D. A. S. (1999). *Monitoring heathland fires in Dorset: Phase 1*.
- Lake, S., Liley, D., Still, R., & Swash, A. R. H. (2015). *Britain's Habitats; a Guide to the Wildlife Habitats of Britain and Ireland*. WildGuides/Princeton University Press.
- Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of Public Health*, 33(2), 212–222. doi: 10.1093/pubmed/fdq068
- Liley, D., & Clarke, R. T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. *Biological Conservation*, 114, 219–230.
- Liley, D., Clarke, R. T., Underhill-Day, J., & Tyldesley, D. T. (2007). *Evidence to support the Appropriate Assessment of development plans and projects in south-east Dorset*. Footprint Ecology / Dorset County Council. Retrieved from Footprint Ecology / Dorset County Council website: [internal-pdf://Footprint et al Dorset evidence base, January 8th 2007-2871396608/Footprint et al Dorset evidence base, January 8th 2007.pdf](internal-pdf://Footprint%20et%20al%20Dorset%20evidence%20base,%20January%208th%202007-2871396608/Footprint%20et%20al%20Dorset%20evidence%20base,%20January%208th%202007.pdf) [internal-pdf://Footprint et al Dorset evidence base MAPS, January 8th 2007-3139838720/Footprint et al Dorset evidence base MAPS, January 8th 2007.pdf](internal-pdf://Footprint%20et%20al%20Dorset%20evidence%20base%20MAPS,%20January%208th%202007-3139838720/Footprint%20et%20al%20Dorset%20evidence%20base%20MAPS,%20January%208th%202007.pdf)
- Liley, D., & Fearnley, H. (2012). *Poole Harbour Disturbance Study*. Footprint Ecology / Natural England.

- Liley, D., & Fearnley, H. (2014). *Trends in Nightjar, Woodlark and Dartford Warbler on the Dorset Heaths 1991-2013*. Footprint Ecology / Birds of Poole Harbour.
- Liley, D., Lake, S., Underhill-Day, J., Sharp, J., White, J., Hoskin, R., ... Fearnley, H. (2010). *Welsh Seasonal Habitat Vulnerability Review*. Footprint Ecology / CCW.
- Liley, D., Sharp, J., & Clarke, R. T. (2008). *Access patterns in south-east Dorset. Dorset household survey and predictions of visitor use of potential greenspace sites. Dorset Heathlands Development Plan Document*. Footprint Ecology / Poole Borough Council. Retrieved from Footprint Ecology / Poole Borough Council website: internal-pdf://Household Survey Part I, Footprint Ecology, 9 Dec 08-0901458176/Household Survey Part I, Footprint Ecology, 9 Dec 08.pdf
- Liley, D., Sharp, J., Underhill-Day, J., & Caldow, R. (2009). *Comparison of the abundance and distribution of birds along the northern shore of Poole Harbour by day and by night* [Natural England Commissioned Report]. Footprint Ecology / Natural England. Retrieved from Footprint Ecology / Natural England website: <http://naturalengland.etraderstores.com/NaturalEnglandShop/NECR017>
- Liley, D., & Tyldesley, D. (2011). *Habitats Regulations Assessment of Purbeck Core Strategy, Proposed Changes to Pre-Submission*. Footprint Ecology / David Tyldesley Associates / Purbeck District Council. Retrieved from Footprint Ecology / David Tyldesley Associates / Purbeck District Council website: <http://www.dorsetforyou.com/media.jsp?mediaid=166011&filetype=pdf>
- Liley, D., Underhill-Day, J., Cruickshanks, K., Fearnley, H., White, J., & Hoskin, R. (2010). *Purbeck Core Strategy, Implications of Additional Growth Scenarios for European Protected Sites*. Footprint Ecology / David Tyldesley Associates. Retrieved from Footprint Ecology / David Tyldesley Associates website: <http://www.dorsetforyou.com/media.jsp?mediaid=156571&filetype=pdf>
- Lowen, J., Liley, D., Underhill-Day, J., & Whitehouse, A. T. (2008). *Access and Nature Conservation Reconciliation: supplementary guidance for England*. Retrieved from internal-pdf://NECR013 Access and N C Reconciliation - Supp Guidance-2802587904/NECR013 Access and N C Reconciliation - Supp Guidance.pdf
- Medeiros, R., Ramosa, J. A., Paivaa, V. H., Almeida, A., Pedroa, P., & Antunes, S. (2007). Signage reduces the impact of human disturbance on little tern nesting success in Portugal. *Biological Conservation*, 135(1), 99–106.
- Moore, N. W. (1962). The heaths of Dorset and their conservation. *Journal of Ecology*, 60, 369–391.
- Natural England. (2018). *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* (NEA No. 001). Natural England. Retrieved from Natural England website: <http://publications.naturalengland.org.uk/file/5431868963160064>

- Nolet, B. A., Bevan, R. M., Klaassen, M., Langevoord, O., & Van der Heijden, Y. (2002). Habitat switching by Bewick's swans: maximization of average long-term energy gain? *J. Anim. Ecol.*, 71(6), 979–993.
- O'Neill, R. (2019). *Monitor of Engagement with the Natural Environment – The national survey on people and the natural environment. Headline report 2019* (NECR No. 275). Natural England and the Office for National Statistics. Retrieved from Natural England and the Office for National Statistics website:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828552/Monitor_Engagement_Natural_Environment_2018_2019_v2.pdf
- Panter, C. (2015). *Summary of visitor surveys at Winfrith and Tadnoll Heaths 2014-15* (No. 136). Footprint Ecology on behalf of the Urban Heaths Partnership.
- Panter, C. (2016). *Summary of visitor monitoring at Winfrith & Tadnoll Heaths 2015-2016* (Unpub. Report No. 295). Footprint Ecology / Urban Heaths Partnership / English Nature.
- Panter, C., & Caals, Z. (2020a). *Dorset Heaths 2019 Visitor Survey* (Unpub. Report No. 545). Footprint Ecology / Urban Heaths Partnership / English Nature.
- Panter, C., & Caals, Z. (2020b). *Urban Heaths Partnership Annual Monitoring Report 2018-19*. Unpublished report for the Urban Heaths Partnership.
- Panter, C., & Liley, D. (2019). *Cannock Chase Visitor Survey 2018* (Unpub. No. 494). Footprint Ecology / Cannock Chase SAC Partnership.
- Panter, C., Liley, D., & Lowen, S. (2017). *Visitor surveys at European Protected Sites across Norfolk in 2015 and 2016*. Unpublished report by Footprint Ecology for Norfolk County Council.
- Pickess, B. P. (2007). *Important birds of Poole Harbour and their status 1998/99-2004/05*. Natural England.
- Pickess, B., & Underhill-Day, J. C. (2002). *Important birds of Poole Harbour*. Poole Harbour Study Group.
- Pretty, J., Griffin, M., Peacock, J., Hine, R., Selens, M., & South, N. (2005). A countryside for health and well-being: the physical and mental health benefits of green exercise. *Countryside Recreation*, 13(1), 2–7.
- Regel, J., & Putz, K. (1997). Effect of human disturbance on body temperature and energy expenditure in penguins. *Polar Biology*, 18(4), 246–253.
- Richardson, M., Cormack, A., McRobert, L., & Underhill, R. (2016). 30 Days Wild: Development and Evaluation of a Large-Scale Nature Engagement Campaign to Improve Well-Being. *PLOS ONE*, 11(2), e0149777. doi: 10.1371/journal.pone.0149777
- Riley, J., Down, G., Hoffman Heap, I., Jackson, S., & Honey, J. (2016). *Exploring Heathland Mitigation in Purbeck*. Unpublished report by Aecom for Purbeck District Council.

- Robert, C., & Ralph, C. J. (1975). Effects of human disturbance on the breeding success of gulls. *Condor*, 495.
- Ross, K., Liley, D., Austin, G., Clarke, R. T., Burton, N. H., Stillman, R. A., ... Underhill-Day, J. (2014). *Housing development and estuaries in England: developing methodologies for assessing the impacts of disturbance to non-breeding waterfowl*. Footprint Ecology, unpublished report for Natural England.
- Sandvik H, & Barrett, R. T. (2001). Effect of investigator disturbance on the breeding success of the Black-legged Kittiwake. *Journal of Field Ornithology*, 72, 30–42.
- Saunders, P., & Liley, D. (2020). *Poole Harbour Disturbance Study 2019/20*. Unpublished report by Footprint Ecology for BCP and Dorset Councils.
- Solomon, D. (1991). *Hampshire Avon Salmon Radio Tracking 1986-1990*. National Rivers Authority, Wessex Region.
- Souter, R. (2017). *Canford Heath, Poole Nightjar Resource Use Study*. Unpublished report by EPR for W.H. White Ltd.
- Stillman, R. A., & Goss-Custard, J. D. (2002). Seasonal changes in the response of oystercatchers *Haematopus ostralegus* to human disturbance. *J. Avian Biol.*, 33(4), 358–365.
- Stock, M., & Hofeditz, F. (1997). Compensatory limits: energy budgets of Brent Geese, *Branta b- bernicla*, the influence of human disturbance. *Journal Fur Ornithologie*, 138(4), 387–411.
- The Land Trust. (2018). *The Economic Value of Greenspaces*. The Land Trust.
- Thiel, D., Jenni-Eiermann, S., Palme, R., & Jenni, L. (2011). Winter tourism increases stress hormone levels in the Capercaillie Tetrao urogallus. *Ibis*, 153(1), 122–133. doi: 10.1111/j.1474-919X.2010.01083.x
- Thomas, K., Kvitek, R. G., & Bretz, C. (2003). Effects of human activity on the foraging behavior of sanderlings *Calidris alba*. *Biological Conservation*, 109(1), 67–71. doi: 10.1016/S0006-3207(02)00137-4
- Tyldesley, D., Chapman, C., & Machin, G. (2020). *The Habitats Regulations Handbook*. DTA Publications. Retrieved from <https://www.dtapublications.co.uk/handbook/>
- Underhill-Day, J. (2007). *A condition assessment of Poole Harbour European Marine Site*. Natural England / Footprint Ecology. Retrieved from Natural England / Footprint Ecology website:
file:///S:/reports%20%26%20pdfs/Papers%20linked%20to%20Endnote/Footprint%20Re
ports/Footprint%20Ecology%20Poole%20Harbour%20SPA%20condition%20assessmen
t.pdf

- Underhill-Day, J. C. (2005). *A literature review of urban effects on lowland heaths and their wildlife*. Peterborough: English Nature. Retrieved from English Nature website: internal-pdf://EN RR 623, John Day literature review of urban effects-3794804480/EN RR 623, John Day literature review of urban effects.pdf
- Walker, B. G., Dee Boersma, P., & Wingfield, J. C. (2006). Habituation of Adult Magellanic Penguins to Human Visitation as Expressed through Behavior and Corticosterone Secretion. *Conservation Biology*, 20(1), 146–154.
- Weimerskirch, H., Shaffer, S. A., Mabile, G., Martin, J., Boutard, O., & Rouanet, J. L. (2002). Heart rate and energy expenditure of incubating wandering albatrosses: basal levels, natural variation, and the effects of human disturbance. *J Exp Biol*, 205(Pt 4), 475–483.
- White, J., Hoskin, R., Liley, D., Sharp, J., Underhill-Day, J., & Tyldesley, D. (2008). *Nature Conservation Representations to the Secretary of State with regard to the Regional Spatial Strategy Proposed Changes on behalf of Purbeck District Council*. Footprint Ecology / David Tyldesley Associates / Purbeck District Council. Retrieved from Footprint Ecology / David Tyldesley Associates / Purbeck District Council website: internal-pdf://Footprint Ecology 2008, Western sector lytchett maps-0395289856/Footprint Ecology 2008, Western sector lytchett maps.pdf internal-pdf://Footprint Ecology 2008, Western sector lytchett report-3029321472/Footprint Ecology 2008, Western sector lytchett report.pdf
- Yasué, M. (2005). The effects of human presence, flock size and prey density on shorebird foraging rates. *Journal of Ethology*, 23(2), 199–204. doi: 10.1007/s10164-005-0152-8

Appendix 1: European Site Conservation Objectives

- 11.1 As required by the Directives, 'Conservation Objectives' have been established by Natural England, which should define the required ecologically robust state for each European site interest feature. All sites should be meeting their conservation objectives. When being fully met, each site will be adequately contributing to the overall favourable conservation status of the species or habitat interest feature across its natural range. Where conservation objectives are not being met at a site level, and the interest feature is therefore not contributing to overall favourable conservation status of the species or habitat, plans should be in place for adequate restoration.
- 11.2 Natural England has embarked on a project to renew all European site Conservation Objectives, in order to ensure that they are up to date, comprehensive and easier for developers and consultants to use to inform project level Habitats Regulations Assessments in a consistent way. In 2012, Natural England issued now a set of generic European site Conservation Objectives, which should be applied to each interest feature of each European site. These generic objectives are the first stage in the project to renew conservation objectives, and the second stage is to provide more detailed and site-specific information for each site to support the generic objectives, known as supplementary advice. This has been published for some European sites, but not for the Dorset Heathlands. Conservation advice for marine sites such as Poole Harbour is available but is applied at marine area level.
- 11.3 The new list of generic Conservation Objectives for each European site includes an overarching objective, followed by a list of attributes that are essential for the achievement of the overarching objective. Whilst the generic objectives currently issued are standardised, they are to be applied to each interest feature of each European site, and the application and achievement of those objectives will therefore be site specific and dependant on the nature and characteristics of the site. The second stage, provision of the more detailed site-specific information to underpin these generic objectives, will provide much more site-specific information, and this detail will play a fundamental role in informing HRA, and importantly will give greater clarity to what might constitute an adverse effect on a site interest feature.
- 11.4 In the interim, Natural England advises that HRA should use the generic objectives and apply them to the site-specific situation using locally relevant evidence. This should be supported by comprehensive and up to date background information relating to the site.
- 11.5 For SPAs the overarching objective is to:
- 11.6 'Avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Birds Directive.'

- 11.7 This is achieved by, subject to natural change, maintaining and restoring:
- The extent and distribution of the habitats of the qualifying features.
 - The structure and function of the habitats of the qualifying features.
 - The supporting processes on which the habitats of the qualifying features rely.
 - The populations of the qualifying features.
 - The distribution of the qualifying features within the site.

- 11.8 For SACs the overarching objective is to:

'Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.'

- 11.9 This is achieved by, subject to natural change, maintaining and restoring:
- The extent and distribution of the qualifying natural habitats and habitats of qualifying species.
 - The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species.
 - The supporting processes on which qualifying natural habitats and habitats of qualifying species rely.
 - The populations of qualifying species.
 - The distribution of qualifying species within the site.

- 11.10 Conservation objectives inform any HRA of a plan or project, by identifying what the interest features for the site should be achieving, and what impacts may be significant for the site in terms of undermining the site's ability to meet its conservation objectives.

Appendix 2: Conservation Interest of European Sites

Links in the table cross-reference to the Natural England website and the relevant page with the site's conservation objectives. In the qualifying features column, for SPAs NB denotes non-breeding and B breeding features. For SACs, # denotes features for which the UK has a special responsibility. The descriptive text is adapted from Natural England's site improvement plan (and we have omitted descriptions for the Ramsar sites as in all cases the site overlaps with an SAC/SPA). For Ramsar sites, the qualifying features and description are drawn from the Ramsar spreadsheet on the JNCC website³⁷, and the link cross-references to the Ramsar site information page.

European site	Qualifying features	Description
Avon Valley Ramsar	<p>Criterion 1: The site shows a greater range of habitats than any other chalk river in Britain, including fen, mire, lowland wet grassland and small areas of woodland.</p> <p>Criterion 2: The site supports a diverse assemblage of wetland flora and fauna including several nationally-rare species.</p>	The site encompasses the lower reaches of the River Avon and its floodplain between Bickton and Christchurch. The River Avon displays wide fluctuations in water level and parts of the valley are regularly flooded in winter. The Avon valley has a greater range of habitats and a more diverse flora and fauna than any other chalk river in Britain. The valley includes one of the largest expanses of unimproved floodplain grassland in Britain, including extensive areas managed as hay meadow.
Avon Valley SPA	<p>A037(NB) <i>Cygnus columbianus bewickii</i>: Bewick swan</p> <p>A051(NB) <i>Anas strepera</i>: Gadwall</p>	The Avon Valley SPA is a wide river valley comprising mostly unimproved wet grassland and has importance for wintering wildfowl with Bewick's Swan and Gadwall as the notified features. The population of Bewick's Swan in the Avon Valley have decreased in line with a national trend of decrease, which is felt to be due to decreased breeding success. At the moment the SPA does not meet the threshold for them.
Cerne & Sydling Downs SAC	<p>S1065 <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i>: Marsh fritillary butterfly</p> <p>H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)</p>	Cerne & Sydling Downs SAC consists of a large area of semi-natural dry grassland on the west Dorset chalk. Dry valley slopes with a variety of aspects support extensive examples of CG2 <i>Festuca ovina</i> – <i>Avenula pratensis</i> grassland in the south-west of its UK range. A particular feature of this site is the presence of the <i>Succisa pratensis</i> – <i>Leucanthemum vulgare</i> sub-community,

³⁷ <http://archive.jncc.gov.uk/default.aspx?page=2392>

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
		<p>especially on south- and west-facing slopes. This type of calcareous grassland is almost entirely restricted to parts of Wiltshire and Dorset. On south-west-facing slopes, the nationally scarce dwarf sedge <i>Carex humilis</i> can be abundant in this sub-community. This site supports a large marsh fritillary <i>Euphydryas aurinia</i> metapopulation composed of two large and one smaller sub-populations which regularly expand into other nearby areas in favourable years. These colonies occupy calcareous downland situations and complement the wet grassland habitats of the other Dorset strongholds.</p>
<p>Chesil & The Fleet SAC</p>	<p>H1210 Annual vegetation of drift lines H1220 Perennial vegetation of stony banks H1150# Coastal lagoons H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) H1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)</p>	<p>A long linear shingle beach enclosing a brackish lagoon on the south coast of England in Dorset. The site comprises of the Fleet, the largest and best example of a barrier-built saline lagoon and Chesil Bank, one of the three major shingle structures in the UK. The salinity gradient, peculiar hydrographic regime and varied substrates, together with associated reedbed and intertidal habitats have resulted in the Fleet being extraordinarily rich in wildlife. Chesil Bank supports important shingle plant communities.</p>
<p>Chesil Beach & the Fleet Ramsar</p>	<p>Criterion 1: The Fleet is an outstanding example of rare lagoon habitat and is the largest of its kind in the UK. In Europe lagoons are classified as a priority habitat by the EC Habitats and Species Directive. The site also supports rare saltmarsh habitats. Criterion 2: The Fleet supports 15 specialist lagoonal species – more than any other UK site – and five nationally scarce wetland plants as well as ten nationally scarce wetland animals. Chesil Bank is one of the most important UK sites for shingle habitats and species. Criterion 3: The site is the largest barrier-built saline lagoon in the UK, and has the greatest diversity of habitats and of biota. Criterion 4: The site is important for a number of species at a critical stage in their life cycle including post-larval and juvenile bass <i>Dicentrarchus labrax</i>. Criterion 8: The site is important as a nursery for bass <i>Dicentrarchus labrax</i>.</p>	<p>The site includes the whole of the Fleet lagoon and the adjacent Chesil Bank. The Fleet is the largest and best example of a barrier-built saline lagoon in the UK and Chesil is one of the three major shingle structures in the UK. The salinity gradient, peculiar hydrographic regime and varied substrates, together with associated reedbed and intertidal habitats and the relative lack of pollution in comparison to most other lagoons, have resulted in the Fleet becoming extraordinarily rich in wildlife. Outstanding communities of aquatic plants and animals are present, supporting large numbers of wildfowl and waders. Chesil Bank is of great significance to the study of coastal geomorphology and supports nationally important populations of shingle plants and invertebrates. It is also an important breeding site for seabirds.</p>

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
Chesil Beach & the Fleet SPA	A195(B) <i>Sterna albifrons</i> : Little tern A050(NB) <i>Anas penelope</i> : Eurasian wigeon	A long linear shingle beach enclosing a brackish lagoon on the south coast of England in Dorset. The site supports large numbers of wintering waterbirds, including Wigeon. Chesil Bank is an important breeding site for Little Terns.
Crookhill Brick Pit SAC	S1166 <i>Triturus cristatus</i> : Great crested newt	A disused brickpit which has important geological features and contains several ponds that support Great Crested Newts. The Site also contains a variety of habitats used by the newt, including grassland, scrub and quarry spoil.
Dorset Heathlands Ramsar	<p>Criterion 1: Contains particularly good examples of (i) northern Atlantic wet heaths with cross-leaved heath <i>Erica tetralix</i> and (ii) acid mire with <i>Rhynchosporion</i>.</p> <p>Contains largest example in Britain of southern Atlantic wet heaths with Dorset heath <i>Erica ciliaris</i> and cross-leaved heath <i>Erica tetralix</i>.</p> <p>Criterion 2: Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species.</p> <p>Criterion 3: Has a high species richness and high ecological diversity of wetland habitat types and transitions, and lies in one of the most biologically-rich wetland areas of lowland Britain, being continuous with three other Ramsar sites: Poole Harbour, Avon Valley and The New Forest.</p>	Extensive and fragmented, these heathland areas are centred around the estuary of Poole Harbour and are adjacent to the urban conurbation of Bournemouth and Poole. The heathland contains numerous examples of wet heath and acid valley mire, habitats that are restricted to the Atlantic fringe of Europe. These heath wetlands are among the best of their type in lowland Britain. There are also transitions to coastal wetland and fen habitat types. The wetland flora and fauna includes a large assemblage of nationally rare and scarce species, especially invertebrates.
Dorset Heathlands SPA	A224(B) <i>Caprimulgus europaeus</i> : European Nightjar A246(B) <i>Lullula arborea</i> : Woodlark A302(B) <i>Sylvia undata</i> : Dartford Warbler A082(NB) <i>Circus cyaneus</i> : Hen Harrier A098(NB) <i>Falco columbarius</i> : Merlin	The Dorset heathlands is an extensive lowland heathland area in southern England. Formerly a single tract divided only by river valleys it is now fragmented. The heathlands comprise a wide range of different habitat types related to variation in soils, hydrology, water chemistry and land use history.
Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC	H4030 European dry heaths H2150# Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) H7230 Alkaline fens H2110 Embryonic shifting dunes H2190 Humid dune slacks H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i>	The Dorset heathlands is an extensive lowland heathland area in southern England. Formerly a single tract divided only by river valleys it is now fragmented. The heathlands comprise a wide range of different habitat types related to variation in soils, hydrology, water chemistry and land use history.

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
	<p>H2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")</p> <p>H3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p> <p>H7150 Depressions on peat substrates of the Rhynchosporion</p> <p>H4020# Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i></p> <p>H7210# Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></p> <p>H9190 Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains</p> <p>H91D0# Bog woodland</p> <p>S1044 <i>Coenagrion mercuriale</i>: Southern damselfly</p> <p>S1166 <i>Triturus cristatus</i>: Great crested newt</p>	
<p>Dorset Heaths SAC</p>	<p>H4030 European dry heaths</p> <p>H7230 Alkaline fens</p> <p>H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p>H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>H7150 Depressions on peat substrates of the Rhynchosporion</p> <p>H7210# Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i></p> <p>H9190 Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains</p> <p>S1044 <i>Coenagrion mercuriale</i>: Southern damselfly</p> <p>S1166 <i>Triturus cristatus</i>: Great crested newt</p>	<p>The Dorset heathlands is an extensive lowland heathland area in southern England. Formerly a single tract divided only by river valleys it is now fragmented. The heathlands comprise a wide range of different habitat types related to variation in soils, hydrology, water chemistry and land use history.</p>
<p>Fontmell & Melbury Downs SAC</p>	<p>H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)</p> <p>S1654 <i>Gentianella anglica</i>: Early gentian</p>	<p>A large site, comprising of the edge of the north-east Dorset chalk escarpment. It supports a variety of scrub communities and dry calcareous grasslands. The variety of slope, soil and aspect provide habitats for a range of notable plant species such as Early gentian, Bastard toadflax and species of Orchids including Frog orchid, Fragrant orchid and Lesser butterfly orchid. Mosaics of grassland and scrub and a herb-rich sward provide the ideal</p>

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
		conditions for rare and declining butterflies including; Duke of Burgundy, Silver Spotted Skipper, Adonis Blue and Marsh Fritillary.
Holnest SAC	S1166 <i>Triturus cristatus</i> : Great crested newt	Holnest encompasses around 20 ponds set in a mosaic of terrestrial habitats, including areas of semi-improved grassland, scrub and woodland bounded by fences and hedgerows. The ponds exhibit a range of sizes, profiles and origins, and include some recently-created ornamental ponds as well as traditional farm ponds. A large population of Great crested newts <i>Triturus cristatus</i> is present, with over 200 individuals having been recorded at one pond in spring 2003. The woodland areas also provide ideal hibernation habitat.
Isle of Portland to Studland Cliffs SAC	H1210 Annual vegetation of drift lines H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) S1654 <i>Gentianella anglica</i> : Early Gentian	Jurassic and Cretaceous sea cliffs recognised as a World Heritage Site overlooking the English Channel in Dorset. The outstanding geology supports extensive swathes of calcareous grassland with early spider orchid and the endemic early gentian; sea cliff vegetation on hard rocks and a diversity of habitat on seepage rich slumping clays. A highly ephemeral drift line is present on sandy shingle throughout the site.
New Forest Ramsar	<p>Criterion 1: Valley mires and wet heaths are found throughout the site and are of outstanding scientific interest. The mires and heaths are within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. This is the largest concentration of intact valley mires of their type in Britain.</p> <p>Criterion 2: The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plant are found on the site, as are at least 65 British Red Data Book species of invertebrate.</p> <p>Criterion 3: The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scarce wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England.</p>	<p>The New Forest is an area of semi-natural vegetation including valley mires, fens and wet heath within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. The habitats present are of high ecological quality and diversity with undisturbed transition zones. The suite of mires is regarded as the <i>locus classicus</i> of this type of mire in Britain. Other wetland habitats include numerous ponds of varying size and water chemistry including several ephemeral ponds and a network of small streams mainly acidic in character which have no lowland equivalent in the UK. The plant communities in the numerous valleys and seepage step mires show considerable variation, being affected especially by the nutrient content of groundwater. In the most nutrient-poor zones, <i>Sphagnum</i> bog-mosses, Cross-Leaved Heath, Bog Asphodel, Common Cottongrass and similar species predominate. In more enriched conditions the communities are more fen-like.</p>

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
New Forest SPA	<p>A072(B) <i>Pernis apivorus</i>: European honey-buzzard A082(NB) <i>Circus cyaneus</i>: Hen Harrier A099(B) <i>Falco subbuteo</i>: Eurasian Hobby A224(B) <i>Caprimulgus europaeus</i>: European Nightjar A246(B) <i>Lullula arborea</i>: Woodlark A302(B) <i>Sylvia undata</i>: Dartford Warbler A314(B) <i>Phylloscopus sibilatrix</i>: Wood Warbler</p>	<p>The New Forest is a large and complex ecosystem and one of the largest remaining relatively wild areas in the South of England attracting enormous numbers of visitors each year. The SPA supports an extensive and complex mosaic of habitats which hold internationally important populations of breeding and over-wintering birds.</p>
Poole Harbour Ramsar	<p>Criterion 1: The site is the best and largest example of a bar-built estuary with lagoonal characteristics (a natural harbour) in Britain. Criterion 2: The site supports two species of nationally rare plant and one nationally rare alga. There are at least three British Red data book invertebrate species. Criterion 3: The site includes examples of natural habitat types of community interest - Mediterranean and thermo Atlantic halophilous scrubs, in this case dominated by <i>Suaeda vera</i>, as well as calcareous fens with <i>Cladium mariscus</i>. Transitions from saltmarsh through to peatland mires are of exceptional conservation importance as few such examples remain in Britain. The site supports nationally important populations of breeding waterfowl including Common Tern, <i>Sterna hirundo</i> and Mediterranean Gull <i>Larus melanocephalus</i>. Over winter the site also supports a nationally important population of Avocet <i>Recurvirostra avosetta</i>.</p>	<p>Poole Harbour is a bar-built estuary covering an area of nearly 4000 hectares. The Harbour occupies a shallow depression in the acidic, tertiary deposits towards the south-western extremity of the Hampshire Basin and has been formed over the last 5000 years by a rise in sea level. The unusual micro-tidal regime means that a significant body of water is retained throughout the tidal cycle. The site therefore exhibits many of the characteristics of a lagoon. There are extensive intertidal mudflats supporting internationally important numbers of waterfowl in winter. These are fringed on the landward side by saltmarshes or reedbeds. The river valleys of the lower Frome and Piddle support grazing marsh which is also important for wintering waterfowl. Much of the catchment along the western and southern shores comprises the internationally important Dorset heathlands and there are unusual transitions from saltmarsh to valley mire. The Harbour is separated from Poole Bay by the internationally important Studland dunes and the site includes Littlesea, a large dune slack lake also important for wintering wildfowl.</p>
Poole Harbour SPA	<p>A026 <i>Egretta garzetta</i>; Little Egret (NB) A034 <i>Platalea leucorodia</i>; Eurasian Spoonbill (NB) A048 <i>Tadorna tadorna</i>; Common Shelduck (NB) A132 <i>Recurvirostra avosetta</i>; Pied Avocet (NB) A156 <i>Limosa limosa islandica</i>; Black-tailed Godwit (NB) A176 <i>Larus melanocephalus</i>; Mediterranean Gull (B) A191 <i>Sterna sandvicensis</i>; Sandwich Tern (B) A193 <i>Sterna hirundo</i>; Common Tern (B) Waterbird assemblage</p>	<p>Poole Harbour is a large natural harbour comprising of extensive tidal mudflats and saltmarshes, together with associated reedbeds, freshwater marshes and wetland grassland. It has a narrow entrance and a small tidal range and as a result, although classified as an estuary (several rivers flow into it) it has many of the qualities of a large lagoon.</p>
River Avon SAC	<p>H3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation</p>	<p>The River Avon SAC is one of the richest chalk rivers in Europe. It is important for its fish population, invertebrate, which include populations of Desmoulin's</p>

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
	S1016 <i>Vertigo moulinsiana</i> : Desmoulin`s Whorl Snail S1095 <i>Petromyzon marinus</i> : Sea Lamprey S1096 <i>Lampetra planeri</i> : Brook Lamprey S1106 <i>Salmo salar</i> : Atlantic Salmon S1163 <i>Cottus gobio</i> : Bullhead	Whorl Snail and its in-river plant community habitat as well as bankside habitats.
Rooksmoor SAC	H6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) S1065 <i>Euphydryas</i> (<i>Eurodryas</i> , <i>Hypodryas</i>) <i>aurinia</i> : Marsh Fritillary butterfly	Rooksmoor lies in the Blackmore Vale and comprises a series of species rich meadows and copses on heavy neutral to acidic soils over clay. Such agricultural unimproved grassland is now extremely scarce in Dorset and rare nationally. Rooksmoor represents approximately 5% of the remaining neutral grassland in Dorset. The grassland and adjoining woodland supports important assemblages of butterflies including probably the largest English population of the nationally scarce marsh fritillary and part of the only Dorset colony of the nationally scarce Brown Hairstreak.
Solent and Dorset Coast SPA	A191 (B) <i>Sterna sandvicensis</i> ; Sandwich Tern A193 (B) <i>Sterna hirundo</i> ; Common Tern A195(B) <i>Sterna albifrons</i> : Little Tern	Proposals to classify this SPA were approved in 2020. The SPA encompasses coastal areas used by feeding terns. Conservation objectives for the site are not available yet.
St Albans Head to Durlston Head SAC	H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) S1304 <i>Rhinolophus ferrumequinum</i> : Greater Horseshoe Bat S1654 <i>Gentianella anglica</i> : Early Gentian	Jurassic and Cretaceous sea cliffs recognised as a World Heritage Site overlooking the English Channel in Dorset. The outstanding geology supports extensive swathes of calcareous grassland with early spider orchid and the endemic early gentian; sea cliff vegetation on hard rocks and a diversity of habitat on seepage rich slumping clays. Sea caves and mine adits, a legacy of the stone quarrying industry, have created habitat for the greater horseshoe bat and a highly ephemeral drift line is present on sandy shingle throughout the site.
Studland to Portland SAC	H1170 Reefs	The site is important for the outstanding diversity of its Annex 1 reef habitats. The site is situated on the south Dorset coast and extends from the Isle of Portland in the west to Swanage Bay in the east. Bedrock reef is the dominant reef type throughout the Studland to Portland SAC. It occurs in a variety of complex geomorphologic forms, including exposed chalk bedrock; exposed shales and clays; limestone and cementstone ledges; flat bedrock; areas of fragmented rock; and rugged limestone boulders providing deep gullies and overhangs This mosaic of reef habitats support a diverse range of marine life including cup corals, sponges, anemones, nudibranchs and hydroids. Dense

H R A of P u r b e c k L o c a l P l a n a t M a i n M o d i f i c a t i o n s

European site	Qualifying features	Description
		<p>mussel <i>Mytilus edulis</i> beds are found to occur on bedrock associated with strong currents off the eastern side of Portland Bill. <i>Mytilus edulis</i> also occurs in high numbers in the infralittoral zones of the eastern reefs amongst kelp forests.</p>
<p>The New Forest SAC</p>	<p>H7140 Transition mires and quaking bogs H7150 Depressions on peat substrates of the Rhynchosporion H3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) H3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> H4030 European dry heaths H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>) H7230 Alkaline fens H9120 Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion roburipetraeae</i> or <i>Ilici-Fagenion</i>) H9130 <i>Asperulo-Fagetum</i> beech forests H9190 Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains H91D0# Bog woodland H91E0# Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) S1044 <i>Coenagrion mercuriale</i>: Southern damselfly S1083 <i>Lucanus cervus</i>: Stag beetle S1166 <i>Triturus cristatus</i>: Great crested newt</p>	<p>The New Forest is a large and complex ecosystem and one of the largest remaining relatively wild areas in the South of England attracting enormous numbers of visitors each year. The New Forest SAC supports an extensive and complex mosaic of habitats including wet and dry heaths and associated bogs and mires, wet and dry grasslands, ancient pasture woodlands, frequent permanent and temporary ponds and a network of streams and rivers. These habitats support an exceptional variety of flora and fauna including notable species such as southern damselfly, stag beetle and great crested newt.</p>